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ABSTRACT

The Learner-Centered Battery (LCB) is a set of short self-assessment tools for teachers and their students that can help teachers identify profiles of effective beliefs, practices, and discrepancies between teacher and student perspectives. Personalized feedback is available for interpreting individual profiles relative to profiles of the most effective teachers in large-scale validation samples. This feedback helps teachers identify areas for potential change and helps them reflect on and change classroom practices. The purpose of this manual is to provide an overview of the research and conceptual model behind the LCB and to describe the development and validation of the middle and high school level student and teacher surveys that are the primary focus of the LCB. The manual is designed for researchers and educators interested in implementing the LCB survey tools and reflection strategies with high school and middle school teachers and students. A two-phase validation process is reported that focuses on the reliability and content validity of the surveys and the construct and predictive validity of the teacher and student variables measured by the LCB. Results of the validation are reported for 9,722 students and 908 teachers. The following sections are included: (1) "Introduction"; (2) "Background and Rationale for the Development of the Learner-Centered Battery"; (3) "Development and Pilot Testing of the Surveys in the Learner-Centered Battery"; (4) "Validation of the Learner-Centered Battery"; (5) "Conclusions and Implications for Professional Development"; (6) "References"; and (7) "Appendices." Eight appendixes contain the student and teacher surveys, feedback examples, files for Statistical Package for the Social Sciences (SPSS) analysis, and other supporting material. An attached disk contains SPSS syntax files for the manual. (Contains 36 references.) (SLD)

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Researcher Test Manual

for

The Learner-Centered Battery

(Grades 6–12 Version)

A set of self-assessment and reflection tools for middle and high school teachers

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Researcher Test Manual For The Learner-Centered Battery (Grades 6-12 Version)

A Set of Self-Assessment and Reflection Tools for Middle and High School Teachers

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PREFACE

How can middle and high school teachers increase their impact on the learning and achievement of all students? The Learner-Centered Battery (LCB) was developed based on the *Learner-Centered Psychological Principles* (APA/McREL, 1993). The LCB's purpose is to address the need for teachers to (a) examine the consistency of their basic beliefs and assumptions about learners, learning, and teaching with the current knowledge base in education and psychology; (b) attend to student perceptions of teachers' classroom practices in domains critical to motivation, learning, and achievement; and (c) use self-assessment and reflection skills to identify areas of needed professional development in order to reach the needs of all students.

The LCB is a set of short self-assessment tools for teachers and their students that can help teachers identify profiles of effective beliefs, practices, and discrepancies between teacher and student perspectives. Personalized feedback is available for interpreting individual profiles relative to profiles of the most effective teachers in large-scale validation samples. This feedback helps teachers identify areas of potential change and take increasing responsibility for collecting classroom data that can enhance their positive impact on student motivation and achievement. Furthermore, these assessment and feedback tools help teachers reflect on and change their classroom practices, as well as identify personalized staff development needs.

The purpose of the *Researcher Test Manual for the Learner-Centered Battery (Grades 6-12 Version)* is to provide an overview of the research and conceptual model behind the LCB, and to describe the development and validation of the middle and high school level (Grades 6-12) Student and Teacher Surveys that are the primary focus of the LCB. The manual is designed for researchers and educators interested in implementing the LCB survey tools and reflection strategies with middle and high school populations. These surveys form the basis for additional classroom tools and strategies being developed for grades K-5 and the undergraduate and graduate college levels.[1] The manual reports the results of a two-phase validation process which focused, first, on establishing the reliability and content validity of teacher and student surveys included in the LCB and, second, on establishing the construct and predictive validity of teacher and student variables measured by the LCB relative to measures of student motivation and achievement. Results of this validation process are reported for large samples of middle and high school students ($N = 9,722$) and teachers ($N = 908$) from diverse geographic regions of the United States. Conclusions are presented in terms of implications for new professional development models that focus on teachers as lifelong learners and the role of self-assessment and reflection tools in this process.

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[1] Validation data from the school level survey and reflection tools that are part of the ***Learner-Centered Battery*** will be part of a separate manual.

This *Researcher Test Manual for the Learner-Centered Battery (Grades 6-12 Version)* is organized, first, in an introduction section, to provide an overview of the purpose behind these self-assessment tools and a general description of the tools. The history behind the need for these tools to support systemic school reform is provided in the second section on Background. This section also includes a review of the conceptual model on which the tools are based and how information gained from the tools can be used to support the professional development of teachers and improve the educational experiences of all students. A description of the sample population and steps involved in the construction and validation of the self-assessment tools is provided in the third section on the development and pilot-testing of surveys in the LCB. The next section describes the two-phase validation process, which involved large samples of middle and high school students and teachers. A final section presents conclusions and implications for new professional development models that can provide a "seamless" and lifelong learning experience to beginning and experienced teachers. Copies of the middle- and high-school level teacher and student surveys from the LCB are included in the appendices, along with general information researchers and teachers can use when explaining the administration and use of the teacher and student self-assessment surveys.

Regarding context for use, the *Researcher Test Manual for the Learner-Centered Battery (Grades 6-12 Version)* includes the necessary information to support a research implementation of the LCB surveys for grades six through twelve. There are descriptions of survey development and validation results, explanations for survey administration and data analysis including a diskette of *SPSS* commands, and protocols for survey feedback. For administrators who are interested in using the teacher and student surveys in a self-assessment process, additional technical support from research personnel may be required.

To maximize the benefit of using LCB results as a source of professional development for teachers, it is recommended that *Manual* users participate in a training offered by McREL on the LCB which includes the following topics: the value of learner-centered educational approaches, explanation of the self-assessment model, survey administration procedures, data analysis, interpretation of results, and using survey results in a process of teacher change. In general, teachers are more supportive of change toward learner-centered beliefs and practices when they understand the research base for the *Learner-Centered Psychological Principles* (APA/McREL, 1993) and the value of assessing the alignment of their own beliefs and practices with these *Principles*. Researchers and educators who provide LCB participants with background information from this manual, related training, and other sources (e.g., McCombs & and Whisler) increase the likelihood of a positive impact from the LCB through fostering learner-centered classroom practices. As described in the *Manual*, these practices have the potential to increase the motivation and achievement of <u>all</u> learners.

SPECIAL ACKNOWLEDGMENTS

The authors would like to thank several individuals without whose help the *Researcher Test Manual for the Learner-Centered Battery* would not have been possible.

Especially deserving of thanks are the project partners associated with the Mid-continent Regional Educational Laboratory (McREL) in an employee or consultant role who contributed to the conceptualization and data analysis for the LCB and manual. They are Jo Sue Whisler, Jerome Stiller, Dan Jesse, Diane Swartz, and Raymond Wlodkowski.

Thanks also go to individuals at McREL who supported and encouraged us to continue with this project over the years that it took to finish the validation and refinement of surveys included in the LCB. Of these individuals, Tim Waters, Lou Cicchinelli, Bill Bansberg, Bob Marzano, and David Frost deserve special mention. Also appreciated are Joan Buttram's review and editorial suggestions, which have improved the quality of this manual.

Finally, our very special thanks go to Debra Van Sicklin, the project's administrative assistant, whose dedication and tireless attention to the details of producing this manual, contributed significantly to the project's success.

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I. INTRODUCTION

New models of professional development for teachers are focusing on empowerment, teacher responsibility for their own growth and development, teachers as leaders, and teacher development of higher-order thinking and personal reflection skills. A key to teachers' abilities to accept and implement these new models is support for teachers' professional development in the form of self-assessment tools for becoming more aware of their beliefs, practices, and the impact of these practices on students. Teachers can use information from their self-assessments to identify -- in a non-threatening and non-judgmental context -- the kinds of changes in practice that will help them to better serve the learning needs of their students. In this way, teachers can begin to take responsibility, from the very beginning, for developing their own professional development plans.

A number of researchers are creating instruments to help teachers at all levels of the educational system (K-16) look at their own and their students' perceptions of their learning experience. In our work with learner-centered practices at the Mid-continent Regional Educational Laboratory (McREL) over the past five years, we have turned our attention to the development and validation of professional development tools in the form of self-assessment measures and a guided reflection process.

Purpose of Manual

The purpose of the *Researcher Test Manual for the Learner-Centered Battery* (LCB) is to provide an overview of the research and conceptual model behind the LCB, and describe the development and validation of the middle and high school level (Grades 6-12) Student and Teacher Surveys that are the primary focus of the LCB. The Teacher and Student Surveys in the LCB have now been extensively validated with large samples of middle and high school students ($\underline{N}$ = 9,722) and teachers ($\underline{N}$ = 908) from diverse geographic regions of the United States. This manual also describes implications of validation findings for new self-assessment and reflection models for professional development. The manual is designed for researchers and educators interested in implementing the LCB survey tools and reflection strategies with middle and high school populations.

Description of the Learner-Centered Battery

The Learner-Centered Battery (LCB) is part of a self-assessment and reflection system that was specifically developed to help teachers and administrators become more aware of and reflective about (a) their basic beliefs and assumptions about learners, learning, and teaching; (b) the relationship of these beliefs to their school and classroom practices, from their own and their students' perspectives; and (c) the impact of these practices on student motivation, learning, and academic achievement. Ultimately, the tools can become the basis for personalized professional development planning by both teachers and administrators. Table 1 lists and describes the complete set of survey tools in the LCB and what they can accomplish. The LCB surveys that are the focus of this manual are indicated in bold type.

Table 1

Learner-Centered Battery: Set of School and Classroom Tools and Purposes

Survey	*Audience*	*Level*	*Use/Purpose*
Teacher Survey	**Teachers in** K-3, 4-5, **6-12**	**Classroom**	**Self-assessment of teachers' beliefs, practices and attitudes.**
Peer Teacher Survey	Teachers in K-3, 4-5, 6-12	Classroom	Assessment of a peer teacher's classroom practices.
Student Survey	**Students in** K-3, 4-5, **6-12**	**Classroom**	**Students' assessment of their teachers' classroom practices and student self-assessment of motivation.**
Instructor Survey (College Level)	Post-Secondary Teachers	Classroom	Self-assessment of teacher educators' beliefs, practices and attitudes.
Student Survey (College Level)	Post-Secondary Students	Classroom	Students' assessments of their instructors' classroom practices and student self-assessment of motivation.
School Practices Survey	Administrators, Faculty, and Staff	School	Identification of ideal versus real practices related to school climate and leadership.
Parent Survey	Parents of K-12 children	Home and Classroom	Self-assessment of parents' beliefs concerning learning and classroom practices.

Referring to Table 1, first there is a survey for individual classroom teachers. This survey helps teachers assess (1) what they believe about learners, learning, and teaching; and (2) what they see themselves doing in terms of instructional practices in the classroom. There is also a survey for students. The student survey tells teachers what each of their students experiences in their classrooms. This tool helps teachers become more aware of the differences between what they believe they are doing to assist learning and how this is experienced by each student. It gives teachers a source of information about the differences between their perceptions and those of individual students, while focusing on the importance of seeing practices from the students' perspectives. When teachers see the need for changes in practice in particular domains from individual student perspectives, it provides an impetus for changes that can better meet the needs of each student. There is also a Peer Teacher Survey, in which another teacher assesses a peer teacher's classroom practices. This creates comparisons of perceptions of practices that can help teachers identify areas of needed professional development. [Note: The original LCB Teacher, Peer Teacher, and Student surveys were designed for use in middle and high schools. Currently, teacher and student surveys are being

developed and validated for two elementary levels (Grades K-3 and 4-5). In addition, work is in progress to develop and validate college-level versions of the student and teacher surveys.]

The School Practices Survey is for administrators and staff to identify leadership and school climate factors (see Footnote 1). This survey measures administrator, faculty, and other school staff's perceptions of school practices in the areas of instructional practices, expectations, staff voice, and policy that can create discrepancies between each administrator's and staff person's beliefs and perceptions of practices in the preceding areas. Finally, the Parent Survey (currently being revised) is for parents to assess their own beliefs and perceptions of practice related to learning, school, and the classroom. This tool can be used to help teachers and administrators dialogue with parents about areas of potential change to better serve parents and their children's needs.

II. BACKGROUND AND RATIONALE FOR THE DEVELOPMENT OF THE *LEARNER-CENTERED BATTERY*

Educators and policy-makers are increasingly recognizing that comprehensive, systemic, collaborative, and *learner-centered* practices are necessary to bring about effective learning and achievement for *all* students in our schools (e.g., Darling-Hammond & Snyder, 1992; Lambert & McCombs, in press; McCombs, 1992, 1993, 1995; McCombs & Whisler, 1997; McCombs, Lambert, Farley, & Spielberger, 1992; Weinstein, in press). This need is particularly acute for students at risk of school failure in both urban and rural settings (e.g., August, Hakuta, Olguin, & Pompa, 1995; Baum, Renzulli, & Hebert, 1994; Ladson-Billings, G., 1995; Levine, 1996; McCombs & Bansberg, 1996; Wang, Haertel, & Walberg, 1993).

Reform efforts of the past have focused primarily on the technical domain of educational systems (e.g., curriculum content and its delivery) and the organizational structures and processes required to promote learning, achievement, and efficient and effective system management. For many participants in the system -- including students, teachers, and parents -- feelings of alienation, frustration over lack of control, and inadequacy in performing at acceptable or potentially exceptional levels interfere with successful learning and achievement. Furthermore, expectations about what a system should do, look like, or achieve are often based on outdated notions about learning and individual differences, making change difficult. Thus, intervention tools are needed to focus on the people in the system -- their beliefs, and practices as they relate to the development of learning communities and a culture of change. These interventions need to be concerned with (a) creating a positive context for learning at the classroom and school levels; (b) supporting the change in thinking and perspective required at all system levels, and for all constituents, for successful and sustainable system change. The lack of attention to these personal/interpersonal concerns is at the heart of why some of the best technical (e.g., performance-based assessment, cooperative learning) and organizational (e.g., shared decision-making) strategies work well in one context but fail in another. Effective reform thus must address all three domains -- personal, technical, and organizational.

Teachers engage in practices that they think will be best for students and for learning. Sometimes they are unaware of how these practices are being perceived and experienced by others, particularly their students. By having tools for increasing their awareness and knowledge of the personal impact of their classroom practices on each of their students' perceptions of these learning experiences -- and ultimately their students' motivation and achievement -- teachers have information for making *self-initiated* changes that can improve the learning and the experience of learning for *all* their students.

One of the biggest payoffs of these self-assessment tools is that teachers are able to take personal responsibility for their own growth and professional development. They will be able to assess how they affect each of their students. This will help teachers focus their effort where it counts -- where it matters from each student's perspective. They will then be able to make the best use of their time, energy, and talents. In addition, knowing the personal impact

they have on their students and being able to positively influence more students can potentially revitalize a teacher's sense of accomplishment, professionalism, and personal control. These benefits, and the empowerment that results from diagnosing and meeting their own needs, can help reduce feelings of frustration and professional burnout. Teachers can recapture the joy and excitement that brought them into the field.

Defining the Research Base

Beginning in 1991, the Mid-continent Regional Educational Laboratory (McREL), in association with the American Psychological Association's (APA) Task Force for Psychology in Education, undertook the synthesis of fundamental psychological principles that pertain to the learner and learning process. The results of the work are an evolving document, first published in January 1993, entitled the *Learner-Centered Psychological Principles: Guidelines for School Reform* (APA Task Force on Psychology in Education, 1993). The overall goal of the *Principles* document is to provide guidelines for implementing systemic educational reform built on research-based principles of learning and individual differences. As such, the 12 *Principles* are intended to help define learner-centered practices for major system components (instructional strategies, curriculum, assessment, instructional management, teacher preparation, parent and community involvement, and policy) and for persons at various levels of the system (students, teachers, administrators, parents, community members).

Learner-centered education is a multi-dimensional construct, presented in the *Learner-Centered Psychological Principles* as an organized set of principles. The definition of "learner-centered" that has been derived from these principles is shown below (from McCombs & Whisler, 1997):

> *"Learner-centered" is the perspective that couples a focus on individual learners -- their heredity, experiences, perspectives, backgrounds, talents, interests, capacities, and needs -- with a focus on learning -- the best available knowledge about learning and how it occurs and about teaching practices that are most effective in promoting the highest levels of motivation, learning, and achievement for all learners. This dual focus then informs and drives educational decision making. Learner-centered is a reflection in practice of the twelve Learner-Centered Psychological Principles -- in the programs, practices, policies, and people that support learning for all.*

Guided by professional consensus and the research base, the 12 principles were selected and organized into cognitive/metacognitive, affective/motivational, developmental, personal and social, and individual difference factors (Alexander & Murphy, in press; Lambert & McCombs, in press; McCombs, 1993, 1994b; McCombs & Whisler, 1997). These principles and the domains they assess are shown in Tables 2 and 3.

Table 2
The Learner-Centered Psychological Principles

Principles	Description
Metacognitive & Cognitive Factors	
Principle 1: The nature of the learning process	Learning is a natural process of pursuing personally meaningful goals, and it is active, volitional, and internally mediated; it is a process of discovering and constructing meaning from information and experience, filtered through the learner's unique perceptions, thoughts, and feelings.
Principle 2: Goals of the learning process	The learner seeks to create meaningful, coherent representations of knowledge regardless of the quantity and quality of data available.
Principle 3: The construction of knowledge	The learner links new information with existing and future-oriented knowledge in uniquely meaningful ways.
Principle 4: Higher-order thinking	Higher-order strategies for "thinking about thinking" -- for overseeing and monitoring mental operations -- facilitate creative and critical thinking and the development of expertise.
Affective Factors	
Principle 5: Motivational influences on learning	The depth and breadth of information processed, and what and how much is learned and remembered, are influenced by: (a) self-awareness and beliefs about personal control, competence, and ability; (b) clarity and saliency of personal values, interests, and goals; © personal expectations for success or failure; (d) affect, emotion, and general states of mind; and (e) the resulting motivation to learn.
Principle 6: Instrinsic motivation to learn	Individuals are naturally curious and enjoy learning, but intense negative cognitions and emotions (e.g., feeling insecure, worrying about failure, being self-conscious or shy, and fearing corporal punishment, ridicule, or stigmatizing labels) thwart this enthusiasm.
Principle 7: Characteristics of motivation-enhancing learning tasks.	Curiosity, creativity, and higher-order thinking are stimulated by relevant, authentic learning tasks of optimal difficulty and novelty for each student.
Developmental Factors	
Principle 8: Developmental constraints and opportunities.	Individuals progress through stages of physical, intellectual, emotional, and social development that are a function of unique genetic and environmental factors.
Personal & Social Factors	
Principle 9: Social and cultural diversity	Learning is facilitated by social interactions and communication with others in flexible, diverse (in age, culture, family background, etc.), and adaptive instructional settings.
Principle 10: Social acceptance, self-esteem, and learning	Learning and self-esteem are heightened when individuals are in respectful and caring relationships with others who see their potential, genuinely appreciate their unique talents, and accept them as individuals.
Individual Differences	
Principle 11: Individual differences in learning	Although basic principles of learning, motivation, and effective instruction apply to all learners (regardless of ethnicity, race, gender, physical ability, religion, or socioeconomic status), learners have different capabilities and preferences for learning mode and strategies. These differences are a function of environment (what is learned and communicated in different cultures or other social groups) and heredity (what occurs naturally as a function of genes).
Principle 12: Cognitive filters	Personal beliefs, thoughts, and understandings results from prior learning and interpretations become the individual's basis for constructing reality and interpreting life experiences.

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Table 3

Domains of Learner-Centered Principles

Domain	Definition
Metacognitive and Cognitive	These four principles describe how a learner thinks and remembers. They describe factors involved in the construction of meaning from information and experiences. They also explain how the mind works to create sensible and organized views of the world, and to fit new information into the structure of what is already known. They conclude that thinking and directing one's own learning is a natural and active process that, even when subconscious, occurs all the time and with all people. What is learned, remembered, and thought about, however, is unique to each individual.
Affective	These three principles describe how beliefs, emotions, and motivation influence the way in which people perceive learning situations, how much people learn, and the effort they are willing to invest in learning. Our emotional state of mind, our beliefs about personal competence, our expectations about success, and our personal interests and goals all influence how motivated we are to learn. Although motivation to learn is natural under conditions and about things we perceive to be personally relevant and meaningful, motivation may need to be stimulated in situations that require us to learn what seems uninteresting or irrelevant to us.
Developmental	This principle recognizes capacities for learning that are known to develop or emerge over time. It is based on research documenting the changes in human capacities and capabilities over the life span. It informs us about the identifiable progressions of physical, intellectual, emotional, and social areas of development that are influenced by unique genetic or environmental factors. These progressions vary both across and within individuals, and thus cannot be overgeneralized for any one individual or group of individuals because of the risk of limiting opportunities for learning. The important generalization in this domain is that we learn best when material is appropriate to our developmental level and presented in an enjoyable, interesting, and challenging way.
Personal and Social	These two principles describe the role that others play in the learning process, as well as the way people learn in groups. These principles reflect the research that shows that we learn from each other and can help each other learn through the sharing of our individual perspectives. If learners participate in respectful and caring relationships with others who see their potential, genuinely appreciate their unique talents, and accept them as individuals -- both learning and feelings of self-esteem are enhanced. Positive student-teacher relationships define the cornerstone of an effective learning environment -- one that promotes both learning and positive self-development.
Individual Differences	These two principles describe how individuals' unique backgrounds and capabilities influence learning. These principles help explain why individuals learn different things, at different times, and in different ways. Although the same basic principles of learning, thinking, feeling, relating to others, and development apply to all of us, what we learn and how this learning is communicated differs in different environments (e.g., cultural or social groups) and as a function of heredity. From our environment and heredity, we create unique thoughts, beliefs, and understandings of ourselves and our world. Appreciating these differences and understanding how they may show up in learning situations is essential to creating effective learning environments for all students.

The Learner-Centered Model

In examining the *Learner-Centered Psychological Principles*, it is important to note that no one principle can be treated in isolation; it must be seen as part of a set of principles that form a holistic perspective. This perspective combines the best available knowledge on how learning occurs and how individual learner needs and characteristics influence the learning process. When teachers understand and adopt this perspective, their interactions with learners, and the programs and practices they adopt can maximize learning for each of their students. Generally this means that (a) learners are included in educational decision-making processes, whether it be what they focus on in their learning or the rules that are established in the classroom; (b) the diverse perspectives of learners are encouraged and regarded during learning experiences; (c) the differences of learners' cultures, abilities, styles, developmental stages, and needs are accounted for and respected; and (d) learners are treated as co-learners in the teaching and learning process, as individuals with ideas and issues that deserve attention and consideration. The Learner-Centered Model can be diagramed as an integration of the knowledge-base about learners and learning as shown in Figure 1. Applying this knowledge goes further, however. For teachers it means *functioning in a manner consistent with the foundational knowledge represented in the Model and its underlying psychological principles. This shows up in their beliefs, dispositions, characteristics, and practices.*

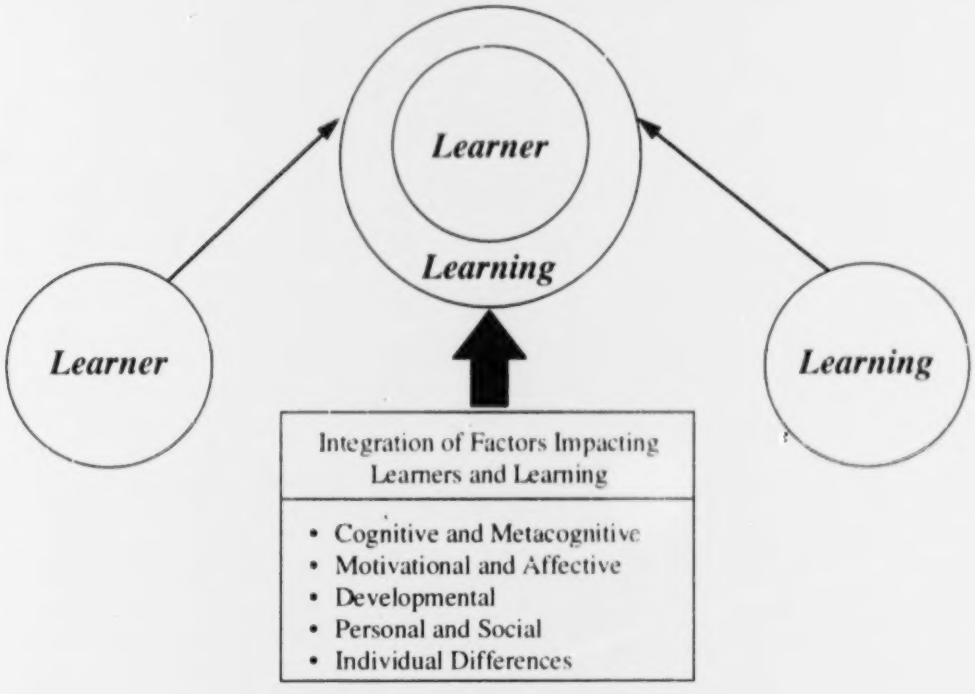

Figure 1. Learner-Centered Model: A Holistic Perspective

Need for Self-Assessment and Reflection Tools

There is a growing recognition that sustainable change requires focusing attention on individuals' beliefs and perceptions. For example, Bonk, Oyer, and Medury (1995) describe the development of the Social Constructivism and Active Learning Environments (SCALE) measure for helping students assess actual and preferred learning formats. This measure was developed as a tool for teachers to use in understanding social constructivist practices and the way they are viewed by students. Others working in this area include Bennett (1995), who claims that knowledge of one's beliefs about teaching and learning is a critical component of becoming an effective teacher and decision-maker. Her research identified seven different teacher perspectives and studied processes for helping teachers reflect on the strengths and potential weaknesses of their particular perspectives for understanding various school contexts and taking a proactive problem-solving approach to their own professional development.

The influence of teacher beliefs and practices on student motivation and learning has been the focus of Midgley and her colleagues (Anderman & Midgley, in press; Buck, Lee, & Midgley, 1992). This research clearly shows that what teachers believed about whether classroom goals should be learning-focused versus ability-focused had a strong relationship on whether they set up classroom practices that focused on supporting effort, innovation, and improvement or on emphasizing competition, relative performance, and differential status among students. In turn, these different classroom practices and cultures influenced student motivation and learning: more learning-focused environments fostered positive learning outcomes to a greater degree than did ability-focused environments. A learning focus also led to higher levels of student efficacy or feelings of competence.

Ross, Cousins, and Gadalla (1995) demonstrated that the kinds of goals teachers set is strongly influenced by their sense of efficacy. Teachers who reported higher feelings of efficacy were more willing to change their beliefs and practices in learner-centered directions. Other research by Behar-Horenstein, Pajares, and George (1995), however, demonstrates that for teachers to change their beliefs to be compatible with more learner-centered and constructivist practices, they need to be engaged in processes that help them become clearer about the gap between what they are accomplishing and what needs to be accomplished. For teachers to successfully implement innovations that create improved student learning and achievement, they must (a) believe in the need for a change, (b) be willing and able to modify their practices, (c) see models of the change required, (d) have an administration and school that support the change, (e) be held accountable for maintaining practices consistent with current views of learning, and (f) be provided with instructional guidance.

Our work with the LCB combined several of these approaches, but the focus was on identifying effective beliefs, practices, and discrepancies between teacher and student perspectives -- in terms of their enhancement of student motivation and achievement -- as a tool to help teachers reflect on and change their practices and identify personalized staff development needs (Fasko, Grubb, Jesse, & McCombs, in press; McCombs, 1997; McCombs & Lauer, in press; McCombs, Ridley, & Stiller, 1995; McCombs & Stiller, 1995).

III. DEVELOPMENT AND PILOT TESTING OF THE SURVEYS IN THE *LEARNEP-CENTERED BATTERY*

Development efforts focused on the creation of self-assessment tools to increase awareness and understanding of learner-centered practice and promote educational change. In the initial LCB, four self-assessment surveys were created: (a) Teacher Beliefs and Assumptions; (b) the Teacher Perceptions of Classroom Practices; (c) the Student Perceptions of Classroom Practices; and (d) the School Practices Survey[2]. The surveys examine classroom and school practices from the perspectives of teacher attitudes, teacher self-reported behavior, student perception of their teacher's behaviors, and administrator and teacher perceptions of school practices, leadership, and climate, respectively. The student survey was originally designed for middle and high school students reading at the fifth-grade level or above.

Item Development

The development of the teacher and student surveys began with an item pool of approximately 180 items per survey developed by a team of educators and researchers. Items were generated to assess teacher beliefs and assumptions about learning, learners, and teaching that were consistent with the *Learner-Centered Psychological Principles* as well as being reflective of a more traditional or teacher-centered perspective. Similarly, items to assess teacher perceptions of classroom practices were developed to reflect best practices in the five domains represented in the *Principles* (i.e., metacognitive/cognitive, affective, personal/social, developmental, and individual differences). After developing a pool of items that reflected best classroom practices from the teachers' perspectives, parallel items from the students' perspective were generated.

Pilot Testing

In December 1992, four representative classes of sixth, seventh, and eighth-grade students ($N = 83$) and teachers ($N = 4$) from a middle school in Aurora, Colorado, examined items on the measure of teacher perceptions of classroom practices. Based on their comments, items were deleted or revised. Pilot testing of the entire LCB began at the same Aurora middle school in February of 1993. A total of 29 teachers took the Teacher Beliefs and Assumptions Survey and rated their classroom behaviors on the Teacher Perceptions of Classroom Practices Survey. These teachers' students ($N = 510$) also rated their teachers' practices on the parallel Student Perceptions of Classroom Practices Survey. Descriptive statistics, including reliability and correlational analyses of scales, were computed on these data. Revisions made based on these analyses consisted of (a) deleting items that clearly showed poor internal consistency

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[2] Data were collected from 252 administrators on the School Practices Survey in Phase I of the validation process. Item development was guided by the *Learner-Centered Psychological Principles* and review of effective school level practices (McCombs, 1994b). Since the focus of this test manual is on the classroom level and the middle and high school versions of the teacher and student surveys that are part of the Learner-Centered Battery, further detail on this school-level survey is not included.

showed poor internal consistency (item-total correlation < .4), (b) rewording items that were confusing or unclear, and (c) adding items to balance learner-centered versus nonlearner-centered practices. From item-level correlational analyses, the Teacher Beliefs and Assumptions Survey was found to have items that clustered in six learner-centered subscales: general learner-centered versus nonlearner-centered assumptions; learner-centered versus nonlearner-centered assumptions about teaching; and learner-centered versus nonlearner-centered assumptions about learning. The Teacher Perceptions of Classroom Practices Survey was found to have items that, based on correlational analyses, clustered around five concepts: general learner-centered practice; practice that emphasizes respectfulness, caring, and understanding of students; practice that emphasizes understanding and respect for individual differences; practice that emphasizes letting students learn in a variety of places and in a multitude of ways; and practice that fosters independent or self-directed learning.

Feedback was provided to the Aurora teachers about their beliefs and assumptions about learners, learning, and teaching and about the discrepancies between their own and their students' perceptions of classroom behaviors and practices. Teachers commented that this feedback was helpful. For example, showing teachers discrepancies between their own and their students' responses by domain of practice helped teachers identify potential areas of change. The Teacher Beliefs and Assumptions Survey was also piloted with 18 middle and high school teachers in a Kansas National Education Association Project. It was found that giving teachers the opportunity to reflect on the *Learner-Centered Psychological Principles* document and its implications for practice (a) raised teachers' level of awareness of the importance of considering individual learner needs and capacities, and (b) influenced their belief that all children can and do learn.

Pilot testing expanded in the spring of 1993 when the Teacher Beliefs and Assumptions survey was administered to a total of 46 teachers from Evergreen, Colorado; St. Louis, Missouri; and Minneapolis, Minnesota. Based on further item and subscale reliability data as well as teacher comments on the items, the teacher surveys were revised to include only those items that demonstrated item-total correlations with their relevant subscale of at least .4 and no adverse teacher comments. The resulting number of items in the Teacher Beliefs and Assumptions Survey was 87. The Teacher Perceptions of Classroom Practices Survey had a total of 70 items from which the parallel Student Perceptions of Classroom Practices Survey was constructed.

IV. VALIDATION OF THE *LEARNER-CENTERED BATTERY*

The validation of the LCB was conducted in two phases. Phase I focused on establishing the content validity and internal reliability of teacher and student surveys included in the LCB. Phase II focused on replicating Phase I results and also on establishing the construct and predictive validity of teacher and student variables measured by the LCB relative to measures of student motivation and achievement.

Phase I Validation of the Learner-Centered Battery

The Phase I validation of the LCB focused on establishing the content validity and internal reliability of the surveys in the LCB with large nationally representative samples of middle and high school teachers and students. The refined surveys were administered in Phase I of the validation for the purposes of: (a) verifying that conceptual factors underlying items in each of the surveys had empirical support from factor analyses; and (b) identifying those items on each survey that contributed to the highest internal consistency coefficient.

Phase I Validation Sample Characteristics[3]

A total of 4,828 students and 672 teachers participated in the Phase I validation of the Learner-Centered Battery. Student and teacher participants in this study were from rural (21% of the teacher sample), urban (31%), and suburban (48%) public schools in Arizona, Colorado, Illinois, and Nebraska. The student sample consisted of 53% female students, 35% Caucasian, 26% Hispanic, 18% Black, 10% Asian, and 13% other. Fifty-five percent (55%) of the student sample were middle school students (grades 6-9), with the remaining 45% high school students. The teacher sample consisted of 69% female, 83% Caucasian, 66% who had been teaching more than 10 years, and 60% who had spent more than four years in their current school. Teachers reported working in multiple content areas (29%) and in traditional disciplines such as language arts, science, social studies, math, and art or music (20%, 16%, 10%, 10%, and 8%, respectively).

Phase I Validation Measures

Three surveys from the Learner-Centered Battery (and a section in the teacher and student surveys for demographic information) were included in the Phase I validation:

Teacher beliefs and assumptions. This is an 87-item self-assessment survey that asked teachers to agree/disagree with beliefs about learners, learning, and teaching. Items were

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[3]These numbers can be compared to National Student Statistics reported in *Overview of Public Elementary and Secondary Schools and Districts: School Year 1994-1995*, National Center for Education Statistics, September 1996; and *The Mini-Digest of Education Statistics 1995*, National Center for Education Statistics, 1995: Rural (28.1%), Urban (34.4%), and Suburban (37.5%); White (67.6%), Black (15.8%), Hispanic (12.7%), and Other (3.8%).

rated on a four-point, Likert-type scale that assessed the intensity of agreement or disagreement with various beliefs and assumptions (1= Strongly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Strongly Agree).

Teacher perceptions of classroom practices. This 70-item self-assessment survey asked teachers to identify the degree to which they perform classroom practices that reflect the current knowledge base on cognitive and metacognitive, affective and motivational, social and personal, developmental, and individual difference factors important to learning. Items were rated on a four-point, Likert-type scale that assessed the frequency of performing various practices (1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always).

Student perceptions of classroom practices. A 70-item self-assessment survey for students, parallel to the teacher version asked students to identify the degree to which they perceived their teacher engaging in various classroom practices. As with the teacher survey, items were rated on a four-point, Likert-type scale that assessed the frequency at which they perceived their teacher to be performing various practices (1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always).

Teacher and student demographic information. The teacher survey included 15 items that asked teachers to supply information regarding: number of years teaching, number of years at current school, main area of content expertise, gender, ethnic/cultural background, highest degree earned, number of credit hours beyond bachelor's degree, main grade level currently teaching, number of students in their class, certificate level, whether they were currently enrolled in a graduate program for advanced study, location of school, type of school, whether they plan to teach next year, and whether they would choose to go into teaching again. The student survey included three items that asked students to supply information regarding their gender, ethnic/cultural background, and current grade level. Background teacher and student information was collected to provide descriptive and individual differences information that might be useful in subsequent profiling of effective teachers.

Phase I Validation Results

To determine subscales, principal-components factor analyses were performed on the Teacher Beliefs and Assumptions Survey and the Teacher and Student Perceptions of Classroom Practices Surveys. On the Teacher Beliefs and Assumptions Survey, six factors accounted for 33.6% of the variance with eigenvalues of 11.68, 6.95, 4.14, 2.43, 2.18, and 1.88. Eighteen additional factors each contributed less than 2% of the variance and had eigenvalues ranging from 1.62 to 1.01. On the Teacher Perceptions of Classroom Practices Survey, six factors accounted for 45.9% of the variance with eigenvalues of 20.95, 3.46, 2.43, 2.13, 1.72, and 1.47 . Eight additional factors each contributed less than 2% of the variance and had eigenvalues ranging from 1.36 to 1.06. On the Student Perceptions of Classroom Practices Survey, five factors accounted for 47% of the variance with eigenvalues of 24.67, 2.81, 1.78, 1.72, and 1.47. Five additional factors each contributed less than 2% of the variance, and had eigenvalues ranging from 1.32 to 1.00.

Based on the eigenvalues and factor loadings from the initial factor analyses, the number of items on each survey was reduced, and exploratory five-factor solutions were then performed. On the Teacher Beliefs and Assumptions Survey (42 items), the five factors accounted for 40.6% of the variance with eigenvalues of 6.91, 4.46, 3.11, 1.32, and 1.22. On the Teacher Perceptions of Classroom Practices Survey (41 items), the five factors accounted for 51.1% of the variance with eigenvalues of 13.88, 2.27, 1.93, 1.51, and 1.38. On the Student Perceptions of Classroom Practices Survey (32 items), the five factors accounted for 56.4% of the variance with eigenvalues of 13.16, 1.66, 1.43, .94, and .87. Subsequently, items with factor loadings less than .4 were eliminated, as well as items for which the loadings were not theoretically interpretable. Reliability analyses were then used to compute the internal consistency coefficient (Cronbach's alpha) of the resulting subscales for each survey. The revised number of factor scales, items per survey, and reliability coefficients are reported below.

Teacher beliefs and assumptions. The resulting survey had 35 items divided into three subscales: (1) Learner-Centered Beliefs about Learners, Learning, and Teaching (14 items, alpha = .87); (2) Nonlearner-Centered Beliefs About Learners (9 items, alpha = .83); and (3) Nonlearner-Centered Beliefs About Teaching and Learning (12 items, alpha = .82).

Perceptions of classroom practices. The resulting survey had 25 items divided into four subscales *based on the student version* of this measure: Personal/Social Dimension -- Practices that Create Positive Interpersonal Relationships and Classroom Climate (7 items, alpha = .91); (2) Affective/Motivational Dimension -- Practices that Honor Student Voice, Challenge Students, and Encourage Perspective Taking (7 items, alpha = .84); (3) Metacognitive/Cognitive Dimension -- Practices that Encourage Higher-Order Thinking and Self-Regulated Learning (6 items, alpha = .85); and (4) Developmental/Individual Differences Dimension -- Practices that Adapt to Individual Differences (5 items, alpha = .71).

Responses to the student version of the Perceptions of Classroom Practices Survey were used for two reasons: (1) a learner-centered framework suggests that changes in practices should reflect students' perspectives of practice; and (2) although the relative priority or order of practices for students and teachers was different, the same general factors were found.

Correlations (see Table 4) between the three teacher beliefs factors and four classroom practices factors (N=660 teachers) ranged from .37 to .46 for learner-centered beliefs and learner-centered practices, and from -.39 to .14 for nonlearner-centered beliefs and learner-centered practices. Correlations between teacher and student perceptions of classroom practices ranged from .18 to .35, with the lowest correlations on perceptions of practice related to the metacognitive and cognitive dimension and the highest correlation on perceptions of practice related to adapting to the individual differences dimension.

Table 4

Correlations Between Teacher Beliefs, Teacher Perceptions of Classroom Practices, and Student Perceptions of Classroom Practices (N=672)

Factors	1	2	3	4	5	6	7	8	9	10
1. LCB	--	--	--	--	--	--	--	--	--	--
2. NLCB-Learners	-.36	--	--	--	--	--	--	--	--	--
3. NLCB-Learning	-.02	.28	--	--	--	--	--	--	--	--
4. T-Positive Relationships	.46	-.32	.14	--	--	--	--	--	--	--
5. T-Student Voice	.43	-.24	.06	.58	--	--	--	--	--	--
6. T-Higher Order Thinking	.40	-.25	.09	.57	.67	--	--	--	--	--
7. T-Individual Differences	.37	-.39	.11	.43	.48	.58	--	--	--	--
8. S-Positive Relationships	.25	-.19	-.10	.32	.18	.19	.19	--	--	--
9. S-Student Voice	.22	-.17	-.15	.21	.22	.19	.14	.85	--	--
10. S-Higher Order Thinking	.18	-.14	-.13	.24	.09	.18	.16	.84	.78	--
11. S-Individual Differences	.09	-.17	.01	.19	.09	.19	.35	.70	.62	.69

Note. Correlations $\geq$ .16 are significant, $p < .05$; LCB = Learner-Centered Beliefs; NLCB = Nonlearner -Centered Beliefs; T = Teacher Perception; S = Student Perception.

It should be noted that, although the teacher beliefs scales and the teacher classroom practices scales were correlated, the two categories of scales represent different concepts and thus were kept separate in the analyses of factor structures. This approach is analogous to the separate treatment of variables such as anxiety and depression that are correlated but considered separately for the purposes of diagnosis, explanation, and treatment.

Phase I Validation Discussion and Conclusions

Phase I validation efforts focused on establishing factor structures (theoretically sound subscales related to learner-centered beliefs and practices) and internal consistency (reliability) for the teacher and student scales. Overall, all scales in the validation study demonstrated moderate to high internal consistencies (alpha coefficients ranged from .67 to .96) and factor structures that were conceptually consistent with the theoretical framework used in the development of the Learner-Centered Battery, i.e., the *Learner-Centered Psychological Principles* (APA/McREL, 1993).

Particularly encouraging were empirical findings that confirmed the theoretical relationships between teacher beliefs and practices. These findings support prior research on moderate relationships between teacher beliefs and practices, leaving room for additional variance that is accounted for by external school policies and practices. In addition, low to moderate relationships between student and teacher perceptions of practice highlight the importance of student perspectives as a guide to change in practice, given that teachers may not be sensitive to what the instructional experience is like for individual students. Finally, the results showed particular promise in the use of the self-assessment instruments as tools for enhancing teacher awareness and reflection as well as for identifying areas of staff development where changes in practice would be beneficial.

To realize the potential value of the LCB, however, an additional phase of the validation was necessary. Phase II was designed to identify those specific teacher beliefs and practices that are related to the highest levels of student motivation and achievement for *all* learners. In addition, Phase II addressed the identification of other teacher and student characteristics (e.g., autonomy orientation, self-efficacy) that can provide additional construct validity and indicate areas for individual teacher professional development.

Phase II Validation of the Learner-Centered Battery

The second phase of the LCB validation, begun in the fall of 1995, focused on replicating Phase I results and on establishing the predictive validity and further construct validity of the revised Teacher and Student Surveys. In addition, the purpose was to identify teacher variables or constructs that are related to their learner-centered beliefs and practices (i.e., teacher efficacy, beliefs about adolescence, reflective self-awareness, autonomy support); and student variables predictive of motivation and achievement (i.e., self-efficacy, active learning strategies, effort-avoidance strategies, task mastery goals, performance-oriented goals, work-avoidant goals, and state epistemic curiosity). In other words, the Phase II validation focused on determining relationships between indicators of "learner-centeredness" (i.e., teacher beliefs, teacher classroom practices, students' perceptions of classroom practices, discrepancies between student and teacher perceptions of classroom practices), as assessed by the LCB surveys, and measures of student motivation and achievement.

Phase II Validation Sample Characteristics[4]

A total of 4,894 students and 236 teachers participated in the Phase II validation of the LCB. Teacher participants (and their students) were from rural (45%), urban (31%), and suburban (24%) public schools in Alaska, Illinois, Kentucky, Michigan, and North Carolina. The student sample consisted of 50% female, 64% Caucasian, 5% Hispanic, 12% Black, 4%

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[4]These numbers can be compared to National Student Statistics reported in *Overview of Public Elementary and Secondary Schools and Districts: School Year 1994-1995*, National Center for Education Statistics, September 1996; and *The Mini-Digest of Education Statistics 1995*, National Center for Education Statistics, 1995: Rural (28.1%), Urban (34.4%), and Suburban (37.5%); White (67.6%), Black (15.8%), Hispanic (12.7%), and Other (3.8%).

Asian, and 15% Other. The school-level data indicated that 44% of the student sample was attending middle schools (generally grades 6 through 8), and 56% of the students were attending high schools. The mean classroom achievement score (from 0 to 100) was 82, 53 for females (SD = 14.45) and 78.74 for males (SD = 16.4). The teacher sample was 54% female, 89% Caucasian, 60% who had been teaching more than 10 years, and 61% who had taught more than four years at their current school. Teachers' reported main areas of content expertise were 26% language arts, 13% social studies, 35% science, 17% math, and 9% arts.

Phase II Validation Measures

The following LCB teacher and student surveys defined at the end of the Phase I validation were used in the Phase II validation:

Teacher survey. The Teacher Survey was constructed in two parts to measure Teacher Beliefs and Assumptions and Teacher Perceptions of Classroom Practices. Three factors, totaling 35 items, were measured in Part I -- Teacher Beliefs: (1) Learner-centered beliefs about learners, learning, and teaching; (2) Nonlearner-centered beliefs about learners; and (3) Nonlearner-centered beliefs about learning and teaching. Four factors totaling 25 items, such as "I allow students to express their own unique thoughts and beliefs," were measured in Part II -- Teacher Practices: (1) Creates positive interpersonal relationships/climate; (2) Honors student voice, provides challenge, and encourages perspective taking; (3) Encourages higher-order thinking and self-regulation; and (4) Adapts to individual developmental differences. The factors were based on Phase I results. Each item on the survey had a value from 1 to 4.

Student survey. The Student Survey measured students' perceptions of their teachers' practices in the same four domains of practice as in the Teacher Survey (Part II). These 25 items formed Part I of the Student Survey and paralleled teacher items, but from the student's perspective, such as, "My teacher lets me express my own thoughts and beliefs." This part of the Student Survey provided teachers with feedback about how each of their students is experiencing their classroom practices relative to their own perspectives. As with the teacher survey, each item had a value from 1 to 4.

Teacher characteristics. The following constructs were selected as the most meaningful predictors of teacher behavior, based on a review of the research literature: self-efficacy, beliefs about adolescence, reflective self-awareness, and autonomy support. Specific measures of these constructs were identified in a collaborative research partnership with Dr. Judith Meece, Professor of Educational Psychology at University of North Carolina Chapel Hill. (Note: The Teacher Efficacy measure was adapted from Midgley, Maehr, and Urdan, 1993. The Teacher Beliefs about Adolescence measure was adapted from Buchanan, Eccles, Flanagan, Midgley, Feldlaufer, and Harold, 1990. The Reflective Self-Awareness measure was adapted from Ridley, 1991, and the Autonomy Support measure was adapted from Deci, Schwartz, Sheinman, and Ryan, 1981.) These constructs were added to the Teacher Survey as Part III: teacher self-efficacy (6 items) and beliefs about adolescence (10 items) were rated on a four-point, Likert- type scale that assesses the intensity of agreement or disagreement (1

= Strongly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Strongly Agree); reflective self-awareness (15 items) and autonomy support (20 items) were rated on a four-point Likert-type scale that assesses the frequency of various behaviors (1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always).

Student motivation and achievement. The following constructs were selected as the most meaningful predictors of student motivation, based on a review of the research literature: self-efficacy, state epistemic curiosity, effort-avoidance strategies, active learning strategies, performance-oriented goals, task-mastery goals, and work-avoidant goals. As above, specific measures of these constructs were identified in a collaborative research partnership with Dr. Meece. [Note: The Student Self-Efficacy measure was adapted from Midgley, Maehr, and Urdan, 1993. The State Epistemic (Knowledge-Seeking) Curiosity measure was adapted from Leherissey, 1971. The Effort-Avoidance Strategies, Active Learning Strategies, Performance-Oriented Goals, Task-Mastery Goals, and Work-Avoidant Goals measures were adapted from Meece, Blumenfeld, and Hoyle, 1988.] These constructs were added as Part II to the Student Survey as follows: student self-efficacy (6 items), state epistemic curiosity (7 items), effort-avoidance strategies (8 items), active learning strategies (8 items), performance-oriented goals (6 items), task-mastery goals (6 items), and work-avoidant goals (6 items) were all rated on a four-point, Likert type scale that assesses the frequency of various behaviors (1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always). For this study, student achievement was defined as classroom achievement and was recorded by participating teachers. To make data comparable across teachers, teachers were asked to convert current letter grades to a 0-100 scale per their grading policies.

Teacher and student demographic information. The same data collected during the Phase I validation were collected in Phase II for the eventual refinement of teacher profiles based on demographic variables.

The Learner-Centered Model and Phase II Hypotheses

A theoretical model of relationships between teacher and student variables was formulated to guide the validation efforts. This model is shown in Figure 2 and posits that the selected teacher characteristics and beliefs underlie their perceptions of classroom practices in the four domains identified in Phase I. Teacher perceptions of classroom practices are, in turn, related to student perceptions of these classroom practices. Student perceptions in each domain of practice are more directly related to student motivation and classroom achievement than are teacher perceptions. Phase II validation efforts explored empirical relationships in this model through testing the following construct and predictive validity hypotheses:

(1) Student achievement will be positively related to positive student motivation variables (i.e., self-efficacy, state epistemic curiosity, active learning strategies, task mastery goals), moderately positively related to performance-oriented goals, and negatively related to effort-avoidance strategies and work-avoidant goals.

(2) Students' achievement and positive motivation variables will be related positively to their perceptions of their teachers' classroom practices as defined by the four factors in Part I of the Student Survey.

(3) The association of student classroom achievement and motivation with perceptions of classroom practices will be stronger for students' perceptions than teachers' perceptions.

(4) Teachers' perceptions of their classroom practice, as measured in Part II of the Teacher Survey, will be positively associated with their self-efficacy, beliefs about adolescence, reflective self-awareness, autonomy support, and learner-centered beliefs, and negatively associated with their nonlearner-centered beliefs.

(5) Students' perceptions of their teachers' practice and teachers' perceptions of their practice will be positively associated, with the strongest associations among corresponding factors.

(6) Teachers' characteristics known to have meaningful relationships with teacher behaviors will be positive predictors of their learner-centered beliefs and negative predictors of their nonlearner-centered beliefs.

(7) Teachers' characteristics and learner-centered beliefs will be positive predictors of their learner-centered practices, and nonlearner-centered beliefs will be negative predictors of their learner-centered practices.

(8) Teachers' characteristics and learner-centered beliefs will be positive predictors of students' perceptions of their learner-centered practices, and teachers' nonlearner-centered beliefs will be negative predictors of students' perceptions of their teachers' learner-centered practices.

(9) Student perceptions of their teachers' learner-centered practices will be positive predictors of their academic motivation and classroom achievement.

(10) Student perceptions of their teachers' learner-centered practices will account for significant variance in their academic motivation and classroom achievement.

(11) Teacher perceptions of their learner-centered practices will be positive predictors of their students' academic motivation and classroom achievement.

(12) Teacher perceptions of their learner-centered practices will account for significant variance in their students' academic motivation and classroom achievement.

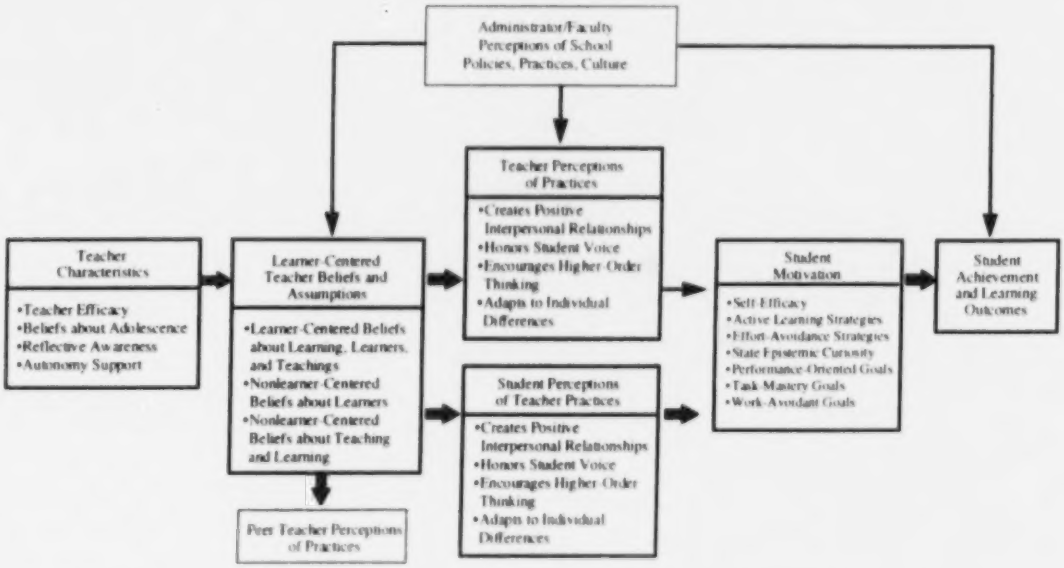

Figure 2. A learner-centered model of relations between teacher beliefs, teacher practices, and student outcomes.

Phase II Validation Results

To further support the scale construction findings reported in the Phase I results, factor and reliability analyses also were conducted in the second study. In addition, a series of correlational and multiple regression analyses were conducted to test the above hypotheses concerning the construct and predictive validity of Phase II LCB scores.

Factor Analyses. On the Teacher Beliefs and Assumptions Survey, the three subscale factors accounted for 34.2% of the variance with eigenvalues of 5.89, 3.97, and 2.11. On the Teacher Perceptions of Classroom Practices Survey, the four subscale factors (based on the student version explained previously) accounted for 53.2% of the variance with eigenvalues of 8.75, 1.78, 1.49, and 1.28. On the Student Perceptions of Classroom Practices Survey, the four factors accounted for 57.6% of the variance with eigenvalues of 11.28, 1.18, 1.00, and .93. Tables 5 through 7 show the equamax rotated factor loadings for the items of each of the three surveys. In general, Phase II factor analyses data supported the factor structure that was derived from Phase I data.

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Table 5

Factor Loadings for Teacher Assumptions and Beliefs Scales, Equamax Rotation (N=236)

Learner-Centered Beliefs: Learners, Learning & Teaching (Factor 1)		Nonlearner-Centered Beliefs: Learners (Factor 3)		Nonlearner-Centered Beliefs: Learning & Teaching (Factor 2)	
Item	Loading	Item	Loading	Item	Loading
1	.42	2	.43	3	.50
4	.51	5	.51	6	.43
7	.57	8	.46	9	.40
10	.59	11	.45	12	.51
13	.55	14	.34	15	.49
16	.50	17	.55	18	.49
19	.48	20	.56	21	.54
22	.64	23	.50	24	.48
25	.55	26	.40	27	.47
28	.67			29	.41
30	.38			31	.53
32	.46			33	.47
34	.47				
35	.51				

Table 6

Factor Loadings for Teacher Perceptions of Classroom Practices Scales, Equamax Rotation (N=236)

Positive Relationships (Factor 3)		Student Voice (Factor 1)		Higher-Order Thinking (Factor 2)		Individual Differences (Factor 4)	
Item	Loading	Item	Loading	Item	Loading	Item	Loading
36	.57	37	.33	38	.24	39	.39
40	.47	41	.63	42	.12	43	.31
44	.65	45	.39	46	.53	47	.23
48	.46	49	.39	50	.23	51	.49
52	.22	53	.29	54	.47	55	.38
56	.53	57	.19	58	.40		
59	.22	60	.46				

Table 7

Factor Loadings for Student Perceptions of Classroom Practices Scales, Equamax Rotation (N=4894)

Positive Relationships (Factor 1)		Student Voice (Factor 3)		Higher-Order Thinking (Factor 2)		Individual Differences (Factor 4)	
Item	Loading	Item	Loading	Item	Loading	Item	Loading
1	.60	2	.43	3	.47	4	.48
5	.48	6	.36	7	.38	8	.36
9	.64	10	.47	11	.53	12	.50
13	.64	14	.39	15	.55	16	.54
17	.52	18	.49	19	.53	20	.42
21	.60	22	.41	23	.45		
24	.56	25	.50				

Internal consistency analysis. As shown in Table 8, the subscales of the Teacher and Student Surveys in Phase II generally replicated the internal consistency found in Phase I results. Three of the four teacher and student perceptions of classroom practices factors (Positive Relationship, Student Voice, and Higher- Order Thinking Skills) had Cronbach alpha coefficients of .80 or higher and the fourth factor (Individual Differences) had Cronbach alpha coefficients of .60 and .70, respectively.

Table 8

Reliability Coefficients for Teacher and Student Scales

Teacher Scales (N = 236)	Cronbach's Alpha	Number of Items
Learner-Centered Beliefs	.84	14
Nonlearner-Centered Beliefs About Learners	.73	9
Nonlearner-Centered Beliefs About Learning and Teaching	.80	12
Creates Positive Interpersonal Relationships	.83	7
Honors Student Voice	.79	7
Encourages Higher-Order Thinking Skills	.80	6
Adapts to Individual Differences	.60	5
Teacher Self-Efficacy	.69	6
Beliefs About Adolescence:		
Teacher Can Influence	.43	4
Difficult Stage	.62	6
Reflective Self-Awareness	.85	
Autonomy Support:		
Moderately Controlling	.71	5
Highly Controlling	.60	5
Moderately Autonomous	.49	5
Highly Autonomous	.45	5
Student Scales (N = 4894)	**Cronbach's Alpha**	**Number of Items**
Creates Positive Interpersonal Relationships	.91	7
Honors Student Voice	.83	7
Encourages Higher-Order Thinking	.85	6
Adapts to Individual Differences	.70	5
Self-Efficacy Ratings	.79	6
Effort-Avoidance Strategies	.77	8
Performance-Oriented Goals	.72	6
State Epistemic Curiosity	.72	7
Active Learning Strategies	.81	8
Task-Mastery Goals	.84	6
Work-Avoidant Goals	.73	6

Correlational analyses (Hypotheses 1-5). The results indicate that student achievement and motivation variables were related in the predicted pattern. Student achievement was most strongly related to students' self-efficacy, use of active learning strategies, task mastery goals, and state epistemic curiosity; uncorrelated with their performance-oriented goals, and negatively correlated with their effort-avoidance strategies and work-avoidant goals (Hypothesis 1). In addition, as shown in Table 9, there is a pattern of strong correlations (i.e., r = .56 to .74, mean r = .62) among students' self-efficacy, task mastery goals, use of active learning strategies, and state epistemic curiosity.

Table 9

Correlations Between Student Achievement and Motivation (N = 4894)

	CA	1	2	3	4	5	6
1. Self-Efficacy Ratings	.37	--	--	--	--	--	--
2. Effort-Avoidance Strategies	-.17	-.25	--	--	--	--	--
3. Performance-Oriented Goals	-.01	.20	.32	--	--	--	--
4. State Epistemic Curiosity	.19	.56	-.39	.12	--	--	--
5. Active Learning Strategies	.17	.56	-.11	.36	.58	--	--
6. Task-Mastery Goals	.16	.57	-.16	.37	.69	.74	--
7. Work-Avoidant Goals	-.15	-.17	.69	.37	-.36	-.06	-.15

Note. Numbers in this table are correlation coefficients. Coefficients ≥ .04 are significant, $p < .01$.
CA = Classroom Achievement.

As shown in Table 10, student classroom achievement and motivation variables were correlated with each of the four factors pertaining to student perceptions of classroom practices (Hypothesis 2). Student achievement correlated moderately with each of the four factors (mean r = .16). Students' self-efficacy, state epistemic curiosity, active learning strategies, and task-mastery goals all correlated strongly with the four practices factors (mean r = .44). Students' performance-oriented goals correlated moderately with the four factors (mean r = .21). There were slight negative correlations between students' effort-avoidance strategies, work-avoidant goals and three of the four factors (creates positive relationships, honors student voice, and encourages higher-order thinking skills; mean r = -.06) and slight positive correlations with the fourth factor, individual differences (mean r = .11).

Table 10

Correlations of Student Achievement and Motivation with Student Perceptions of Teacher Practices (N = 4894)

	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
Classroom Achievement	.20**	.18**	.14**	.13**
Self-Efficacy Ratings	.45**	.41**	.39**	.27**
Effort-Avoidance Strategies	-.08**	-.07**	-.05**	.12**
Performance-Oriented Goals	.19**	.18**	.23**	.24**
State Epistemic Curiosity	.47**	.44**	.46**	.34**
Active Learning Strategies	.47**	.49**	.50**	.41**
Task-Mastery Goals	.52**	.50**	.53**	.41**
Work-Avoidant Goals	-.06**	-.04**	-.03*	.09**

*p < .05. **p < .01.

Table 11

Correlations of Student Achievement and Motivation with Teacher Perceptions of Teacher Practices

	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
	Aggregated by Teacher (N = 236)			
Classroom Achievement	.11	.05	.10	.13
Self-Efficacy Ratings	.18**	.10	.10	.03
Effort-Avoidance Strategies	-.02	-.03	-.06	.13
Performance-Oriented Goals	.16*	.09	.08	.19**
State Epistemic Curiosity	.25**	.19**	.24**	.11
Active Learning Strategies	.26**	.18**	.19**	.15*
Task-Mastery Goals	.30**	.18**	.22**	.18**
Work-Avoidant Goals	.03	.00	-.05	.12

Table 11 (continued)

	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
	Not Aggregated by Teacher (N = 4894)			
Classroom Achievement	.05**	.02	.06**	.09**
Self-Efficacy Ratings	.06**	.04**	.02	-.00
Effort-Avoidance Strategies	-.02	-.02	-.03	.05**
Performance-Oriented Goals	.05**	.01	.01	.06**
State Epistemic Curiosity	.10**	.07**	.08**	.02
Active Learning Strategies	.10**	.07**	.06**	.05**
Task-Mastery Goals	.13**	.06**	.07**	.06**
Work-Avoidant Goals	-.01	-.02	-.04	.03

*p < .05. **p < .01.

Table 11 shows the correlations of student motivation and achievement with teacher perceptions of classroom practices. All the correlations are of smaller magnitude than those reported in Table 10 for student perceptions of teacher practices (Hypothesis 3).

Teachers' perceptions of their classroom practices were positively associated with their learner-centered beliefs about learners and negatively associated with their nonlearner-centered beliefs about learners. The only significant correlation between teachers' nonlearner-centered beliefs about learning and their perceptions of practices was in the domain of individual differences for which there was a positive correlation. As indicated in Table 12, there were significant positive correlations between teachers' perceptions of the four classroom practices and teachers' self-efficacy, beliefs that they can influence students during adolescence, and reflective self-awareness. The measure of autonomy support showed mixed correlation patterns, with more significant positive correlations between teachers' perceptions of classroom practices and moderately controlling compared to highly controlling attitudes.

Table 12

Correlations of Teacher Beliefs and Characteristics with Teacher Perceptions of Practices (N=236)

	Teacher Perceptions of Classroom Practices			
	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
Teacher Beliefs				
LCB	.40**	.33**	.26**	.15*
NLCB - Learners	-.13*	-.15*	-.13	-.09
NLCB - Learning & Teaching	.12	.09	.09	.21**
Teacher Characteristics				
Self-Efficacy	.46**	.39**	.40**	.39**
Beliefs About Adolescence				
Teacher Can Influence	.34**	.24**	.20**	.23**
Difficult Stage	-.02	-.04	-.07	.00
Reflective Self-Awareness	.37**	.50**	.44**	.29**
Autonomy Support				
Moderately Controlling	.14*	.08	.05	.24**
Highly Controlling	.03	.03	-.01	.25**
Moderately Autonomous	.21**	.09	.16*	.22**
Highly Autonomous	.18**	.15*	.10	.08

Note. LCB = Learner-Centered Beliefs. NLCB = Nonlearner-Centered Beliefs.
*p < .05. **p < .01.

Hypothesis 5 received mixed support (Table 13). While student and teacher perceptions of teacher practices generally correlated with one another as predicted in Hypothesis 5, the prediction that the strongest associations would be among corresponding factors was observed only for the practice of adapting to individual differences. The other three student perception factors were associated most strongly with teacher perceptions of providing positive interpersonal relationships.

Table 13

Correlations Between Teacher and Mean Student Perceptions of Classroom Practices (N = 236)

	Teacher Perceptions			
Student Perceptions	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
Positive Relationships	.41	.20	.21	.25
Student Voice	.31	.19	.20	.18
Higher-Order Thinking	.38	.24	.25	.28
Individual Differences	.36	.22	.24	.40

Note. All correlations are $p < .01$.

Multiple regression analyses (Hypotheses 6-12). Results of the regression analysis testing (shown in Tables 14, 15, 16, 17, and 18) supported most of the predicted relationships.

Table 14

The Regression of Teacher Characteristics on Teachers' Beliefs About Learning (N = 236)

Teacher Characteristic	LCB	NLCB-L	NLCB-LT
Self-Efficacy	.16*	-.23**	.08
Adolescence -- Can Influence	26**	-.21**	-.24**
Adolescence -- Difficult Stage	.04	.06	.03
Reflective Self-Awareness	.08	-.04	-.03
Moderately Controlling	-.09	-.00	.37 *
Highly Controlling	-.15*	.24**	.19**
Moderately Autonomous	.10	-.01	-.02
Highly Autonomous	.11	-.12	-.05
Total R^2	.23**	.25**	.33**

Note. Numbers in this table are beta weights. LCB = Learner-Centered Beliefs. NLCB-L = Nonlearner-Centered Beliefs About Learners. NLCB-LT = Nonlearner-Centered Beliefs About Learning and Teaching. *$p < .05$. **$p < .01$.

Table 15

The Regression of Teacher Beliefs on Teacher Perceptions of Practices (N = 236)

Teacher Beliefs	Teacher Perceptions of Teacher Practices			
	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
LCB	.41**	.33**	.26**	.16*
NLCB About Learners	-.15*	-.15*	-.15*	-.18*
NLCB About Learning & Teaching	.26**	.18**	.19**	.31**
Total R^2	.21**	.13**	.09**	.09**

Note. Numbers in this table are beta weights. LCB = Learner-Centered Beliefs. NLCB = Nonlearner-Centered Beliefs.
*p < .05. **p < .01.

Table 16

The Regression of Teacher Beliefs on Mean Student Perceptions of Teacher Practices (N = 236)

Teacher Beliefs	Student Perceptions of Teacher Practices			
	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences
LCB	.22**	.15*	.20**	.15*
NLCB About Learners	-.12	-.10	-.18*	-.18*
NLCB About Learning and Teaching	-.01	-.06	.02	.11
Total R^2	.07**	.04**	.07**	.04**

Note. Numbers in this table are beta weights. LCB = Learner-Centered Beliefs. NLCB = Nonlearner-Centered Beliefs.
*p < .05. **p < .01.

Table 17

The Regression of Student Perceptions of Teacher Practices on Student Achievement and Motivation (N = 4894)

	Student Perceptions of Teacher Practices				
Student Variables	Positive Relationships	Student-Voice	Higher-Order Thinking	Individual Differences	R^2
Classroom Achievement	.19**	.10**	-.07*	-.02	.05**
Self-Efficacy	.35**	.14*	.06**	-.09**	.21**
Active Learning Strategies	.08**	.17**	.25**	.08**	.28**
Effort-Avoidance Strategies	-.21**	-.10**	-.02	.34**	.07**
Performance-Oriented Goals	-.02	-.07	.18*	.18*	.07**
State Epistemic Curiosity	.25**	.09**	.20**	-.02*	.24**
Task-Mastery Goals	.21**	.09**	.28**	.04*	.31**
Work-Avoidant Goals	-.18**	-.05	-.02	.26**	.04**

Note. Numbers in this table are beta weights.
*p < .05. **p < .01.

Table 18

The Regression of Teacher Perceptions of Practices on Mean Student Achievement and Motivation (N = 236)

	Teacher Perceptions of Teacher Practices				
Student Motivation	Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences	R^2
Classroom Achievement	.09	-.13	.08	.10	.01
Self-Efficacy	.23*	-.01	.02	-.11	.02
Active Learning Strategies	.25**	-.05	.08	-.01	.05**
Effort-Avoidance Strategies	-.06	-.01	-.16	.26**	.03*

Table 18 (continued)

Student Motivation	Teacher Perceptions of Teacher Practices: Positive Relationships	Student Voice	Higher-Order Thinking	Individual Differences	R^2
Performance-Oriented Goals	.14	-.06	-.06	.18*	.03*
State Epistemic Curiosity	.21*	-.06	.22**	-.11	.07**
Task-Mastery Goals	.31**	-.13	.12	-.00	.08**
Work-Avoidant Goals	.01	.03	-.20	.22*	.02

Note. Numbers in this table are beta weights.
*p < .05. **p < .01.

The data pertaining to Hypothesis 6 are contained in Table 14. Hypothesis 6 stated that teacher characteristics known to have meaningful relationships with teacher behaviors will be positive predictors of their learner-centered beliefs and negative predictors of their nonlearner-centered beliefs. Teachers' self-efficacy and the belief that they can influence students during adolescence positively predicted teachers' learner-centered beliefs and negatively predicted their nonlearner-centered beliefs. Highly controlling attitudes negatively predicted teachers' learner-centered beliefs and positively predicted their nonlearner-centered beliefs.

Hypothesis 7 concerning teacher perceptions generally was supported by these data. As shown in Table 15 and as stated in Hypothesis 7, teachers' learner-centered beliefs positively predicted their perceptions of providing positive relationships, honoring student voice, encouraging higher-order thinking, and adapting to students' individual differences. Also, teachers' nonlearner-centered beliefs about learners negatively predicted all four practice factors. However, contrary to Hypothesis 7, teachers' nonlearner-centered beliefs about learning and teaching positively predicted their perceptions of all four practice factors.

The regression analysis that tested Hypothesis 8 concerning student perceptions revealed results similar to those for Hypothesis 7. Table 16 indicates that, in general, teachers' learner-centered beliefs were positive predictors of student perceptions of their teachers' learner-centered practices; teachers' nonlearner-centered beliefs about learners were negative predictors of students' perceptions of their teachers' learner-centered practices; and teachers' nonlearner-centered beliefs about learning and teaching were relatively unrelated to students' perceptions of their teachers' learner-centered practices.

Table 17 shows the results of the regression analysis that tested Hypotheses 9 and 10. As predicted by Hypothesis 9, students' perceptions of their teachers' practices pertaining to positive

relationships and student voice were significant positive predictors of student classroom achievement, while their perceptions of practices related to higher-order thinking were a significant negative predictor of student achievement. Also, with some exception, each of the four student perception factors predicted each of the student motivation variables. Taken together, the four student perceptions of classroom practices factors accounted for between 22% and 31% of the variance (Hypothesis 10) in each of the four positive student motivation variables (self-efficacy, active learning strategies, state epistemic curiosity, and task-mastery goals; mean multiple R^2 = .26), and less than 10% of the variance in any of the three negative student motivation variables (effort-avoidance strategies, performance-oriented goals, and work-avoidant goals; mean multiple R^2 = .06).

As shown in Table 18, there was weak support for Hypotheses 11 and 12, which had predicted the influence of teacher perceptions on student achievement and motivation. Teachers' perceptions of providing positive relationships positively predicted student self-efficacy, active learning strategies, state epistemic curiosity, and task-mastery goals. Teachers' perceptions of adapting to individual differences positively predicted effort-avoidance strategies, performance-oriented goals, and work-avoidant goals. However, teachers' perceptions of their learner-centered classroom practices accounted for a mean of less than 4% of the variance in the student achievement and motivation variables (mean multiple R^2 = .04). (Multiple regression analyses of teacher perceptions of practices and student achievement and motivation also were performed using each teacher's constant individual perception score matched to individual student achievement and motivation scores. The results were similar, with teacher perceptions accounting for a mean of only 1% of the variance.)

Phase II Discussion and Conclusions

The main purposes of the Phase II validation study were to further demonstrate the content validity of the LCB, to establish its construct validity by examining its association with existing measures of teacher attitudes and student motivation, and to examine its predictive validity. In general, the data supported the LCB's content, construct, and predictive validity. Furthermore, the results of these analyses provided support and insight for the overall Learner-Centered Model (see Figures 1 and 2) of the relationships between teacher beliefs, their classroom practices, and the motivational and achievement outcomes of their students.

Support for the content validity of the surveys that comprise the LCB was obtained in the factor analyses and the reliability analyses. Phase II factor analyses generally replicated those of Phase I. In addition, each of the factors within the Teacher Beliefs, Teacher Perceptions of Classroom Practices, and Student Perceptions of Classroom Practices Surveys showed acceptable internal consistency as indexed by Cronbach's alpha.

The LCB surveys correlated in predicted patterns with the known measures of teacher characteristics and student motivation used in this study. Teacher perceptions of their practices were positively associated with their self-efficacy, beliefs that they can influence students during adolescence, reflective self-awareness, attitudes about supporting their students' autonomy, and

learner-centered beliefs; and negatively associated with their nonlearner-centered beliefs about learners. Students' perceptions of their teachers' learner-centered practices were positively associated with the students' classroom achievement, self-efficacy, performance-oriented goals, state epistemic curiosity, use of active learning strategies, and task-mastery goals; and negatively associated with their use of effort-avoidance strategies and work-avoidant goals. Because the LCB is intended to assess those teacher characteristics and practices that are related to higher student motivation and achievement, these results provide further support for the construct validity of the surveys that comprise the LCB. The possible exceptions to the above results were the positive correlations of the teacher practice of adapting to individual differences with nonlearner-centered beliefs about learning and teaching, high teacher control, student effort-avoidance strategies, and student work-avoidant goals. This pattern, and the negative association of student classroom achievement with the latter student motivation variables, suggests that both learner- and nonlearner-centered components can occur when teachers adapt to individual differences, and the nonlearner-centered element can influence negative student motivation variables. The positive correlations between student perceptions of their teachers' adaptation to individual differences and the students' effort and work avoidance supports this interpretation.

The predictive validity of the LCB also was supported by Phase II validation data. Student perceptions of their teachers' learner-centered practices were good predictors of students' academic motivation. However, it was clear that students' perceptions of their teachers' learner-centered practices were more powerful predictors of their motivation than teachers' perceptions of their own practices. This finding is consistent with the overall learner-centered perspective, since the focus is on the students' experiences and perceptions rather than on the teachers'. The result also is supported by the stronger correlations of mean student classroom achievement with mean student perceptions of teacher practices than with teachers' perceptions, as predicted in Hypothesis 3. (See Tables 10 and 11).

Finally, the relationships among groups of variables (i.e., teachers' characteristics, their learner-centered beliefs, student perceptions of the teachers' learner-centered practices, student motivation, and student achievement) indicated in the multiple regression analyses strongly suggest that the overall learner-centered model is a valuable and worthwhile tool for assessment and intervention. The results show that teachers' characteristics influence their learner-centered beliefs, which impact students' perceptions of teacher practice; and these perceptions, in turn, influence students' motivation and, finally, classroom achievement. These findings provide an encouraging demonstration of the efficacy of the Learner-Centered Model in understanding and predicting student motivation and achievement, and in assisting teachers in their professional development.

V. CONCLUSIONS AND IMPLICATIONS FOR PROFESSIONAL DEVELOPMENT

Validation studies that implemented the Learner-Centered Battery (LCB) with nearly 10,000 students and over 900 teachers at the middle and high school levels have demonstrated the value of self-assessment and reflection tools for improving classroom practices and encouraging teachers to take increasing responsibility for their own professional development. The following sections present conclusions and further recommendations.

Conclusions

Results of validation studies completed with the LCB point to its usefulness as a self-assessment and reflection tool for teachers to identify (a) students who are not perceiving positive classroom practices in the four domains assessed by the teacher and student perceptions of classroom practices surveys and (b) potential changes in practice that can help reach all students. The value of this strategy is particularly strong given the strong relationships found between student perceptions of classroom practices, motivation, and classroom achievement. That is, students who can be identified as perceiving teacher practices in negative ways are those students who have both low motivation and low achievement. These are the students who most require teacher practices that address their needs. The LCB can provide a useful tool for teachers to identify those areas where changes in practice will have the highest payoff.

Predictive relationships found in the validation of teacher and student surveys revealed meaningful patterns that have implications for assisting school staff in identifying knowledge and skills to be supported by individualized staff-development plans. Designing these plans in light of additional information on school climate and leadership can help teachers assume their own leadership role in facilitating learner-centered reform at the school level. Thus, responses of teachers, administrators, and school staff to the School Practices Survey will be established as part of the continued research plan. Finally, extending the implementation of the teacher and student surveys to the early elementary grades (K-3, 4-5) as well as the college level (preservice teacher education) is planned to expand further the usefulness of the self-assessment and reflection tools in the LCB to a K-16 system that can promote the "seamless" professional development of teachers.

Implications and Recommendations for Professional Development

As we have seen in the summary of results and conclusions of validation studies with the middle and high school students and teachers, the self-assessment and reflection tools in the LCB offer a promising set of tools for the lifelong learning and professional development of teachers. Implications being explored in our current research are that (a) teachers can take increasing personal responsibility for defining their own professional-development plans, (b) the lines between pre- and inservice teacher education can become increasingly "blurred" as individual teacher needs are met in continuing education programs, and (c) the "one-size-fits-all" thinking about effective teachers needs to be modified and tailored to the diversity of teacher characteristic

mixes that can accommodate both student and content diversity in schools. We take this opportunity to expand on these three points.

First, it is all too common in many schools and districts around this country for teachers to engage in inservice professional-development programs defined for them with little flexibility in topics or tailoring to individual teacher needs (e.g., Roskos & Bain, 1996). A major implication of the research reported here is that teachers can now be encouraged to take personal responsibility for assessing themselves and their students, identifying areas of beliefs and/or practices that could be changed to maximize student motivation and achievement, and defining personal professional-development plans to address these areas of change. Getting support from school and district staff to pursue these personal plans becomes a strategy not only for increasing student motivation and achievement -- it also becomes a way to encourage teachers to be learners and active assessors of their own practices (i.e., engaged in meaningful action research). Thus, the validity of the *Learner-Centered Psychological Principles* for all learners in the system is confirmed and the LCB is a promising tool for assessing the common factors that define effective teachers.

Second, the gaps between what we have learned about learners and learning and what many teachers believe and practice in classrooms must not be reduced only in the K-12 system. It must be reduced at the postsecondary level and particularly, in teacher education programs. Although work is being done to change the models of teaching and learning in higher education to which preservice teachers are exposed these frequently have taken the form of separate "professional development schools" that may or may not be integrated into the mainstream of teacher education programs at a particular institution. Using the tools from the LCB and the process of self-assessment and reflection with college-level teachers and their students offers a promise for not only better preparing new teachers to understand learning and best teaching practices -- but it also promises to provide the basis for a "seamless" professional development model that blurs artificial lines between pre- and inservice teacher education.

Finally, and most important from our perspective, our continuing research with the LCB is focused on demonstrating that teachers, like the students they serve, are individuals with rich and valuable diversity. There are general characteristics of effective, learner-centered teachers, but we are also finding that effective teachers in different subject areas do not look the same. For example, our preliminary profiling results show that the most effective teachers in math do not look exactly like the most effective teachers in language arts. Furthermore, the most effective middle school teachers do not look like the most effective high school teachers, and there are other important differences that we are beginning to determine empirically. This means that not only do we have to change our thinking about the "one-size-fits-all" programs for students, but we also have to examine our assumptions about the goals of teacher preparation programs that can accommodate the valuable diversity that is needed for effective teaching. Most of us can recall more than one teacher who made a significant difference for us as learners. These teachers did not look alike, and each offered valuable models for our development. We believe this diversity must be fostered to produce the best matches of teachers, content, and students -- and to encourage the best and brightest to enter the teaching profession and to reach *all* students.

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VII. APPENDICES

- Teacher and Student Surveys for Grades 6-12
- Definitions of LCB Scales
- Instructions for Administration
- Description of Survey Feedback
- Guided Reflection Protocol
- Example of Survey Feedback
- Order of Operations for SPSS Analysis of Survey Data
- Syntax Files for SPSS Analysis of Survey Data

McREL LEARNER-CENTERED BATTERY: TEACHER SURVEY- GRADES 6-12 VERSION

PART I Directions: Please read each of the following statements. Then decide the extent to which you agree or disagree. Using a pencil, mark the letter for that question on the answer sheet that best matches your choice. Go with your first judgement and do not spend much time mulling over any one statement. PLEASE ANSWER EVERY QUESTION.

Responses: A=Strongly Disagree, B=Somewhat Disagree, C=Somewhat Agree, D=Strongly Agree
DO NOT MARK E (Please ignore the Y and N above the bubbles).

1. Students have more respect for instructors they see and can relate to as real people, not just as teachers.

2. There are some students whose personal lives are so dysfunctional that they simply do not have the capability to learn.

3. I can't allow myself to make mistakes with my students.

4. Students achieve more in classes in which instructors encourage them to express their personal beliefs and feelings.

5. Too many students expect to be coddled in school.

6. If students are not doing well, they need to go back to the basics and do more drill and skill development.

7. In order to maximize learning I need to help students feel comfortable in discussing their feelings and beliefs.

8. It's impossible to work with students who refuse to learn.

9. No matter how badly an instructor feels, he or she has a responsibility to not let students know about those feelings.

10. Addressing students' social, emotional, and physical needs is just as important to learning as meeting their intellectual needs.

11. Even with feedback, some students just can't figure out their mistakes.

12. My most important job as a teacher is to help students meet well-established standards of what it takes to succeed.

13. Taking the time to create caring relationships with my students is the most important element for student achievement.

14. I can't help feeling upset and inadequate when dealing with difficult students.

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Responses: A=Strongly Disagree, B=Somewhat Disagree, C=Somewhat Agree, D=Strongly Agree

15. If I don't prompt and provide direction for student questions, they won't get the right answer.

16. Helping students understand how their beliefs about themselves influence learning is as important as working on their academic skills.

17. It's just too late to help some students.

18. Knowing my subject matter really well is the most important contribution I can make to student learning.

19. I can help students who are uninterested in learning get in touch with their natural motivation to learn.

20. No matter what I do or how hard I try, there are some students that are unreachable.

21. Knowledge of the subject area is the most important part of being an effective teacher.

22. Students will be more motivated to learn if teachers get to know them at a personal level.

23. Innate ability is fairly fixed and some children just can't learn as well as others.

24. One of the most important things I can teach students is how to follow rules and to do what is expected of them in the classroom.

25. When teachers are relaxed and comfortable with themselves, they have access to a natural wisdom for dealing with even the most difficult classroom situations.

26. Teachers shouldn't be expected to work with students who consistently cause problems in class.

27. Good teachers always know more than their students.

28. Being willing to share who I am as a person with my students facilitates learning more than being an authority figure.

29. I know best what students need to know and what's important; students should take my word that something will be relevant to them.

30. My acceptance of myself as a person is more central to my classroom effectiveness than the comprehensiveness of my teaching skills.

31. For effective learning to occur, I need to be in control of the direction of learning.

32. Accepting students where they are -- no matter what their behavior and academic performance -- makes them more receptive to learning.

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Responses: A=Strongly Disagree, B=Somewhat Disagree, C=Somewhat Agree, D=Strongly Agree

33. I am responsible for what students learn and how they learn.

34. Seeing things from the students' point of view is the key to their good performance in school.

35. I believe that just listening to students in a caring way helps them solve their own problems.

PART II Directions: Please read each of the following statements. Then decide how often **in this class** you do what is described in each of the statements. Using a pencil, mark the letter for that question on the answer sheet that best matches your choice. Go with your first judgement and do not spend much time mulling over any one statement. PLEASE ANSWER EVERY QUESTION.
Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always DO NOT MARK E

36. I demonstrate to each student that I appreciate him/her as an individual.

37. I allow students to express their own unique thoughts and beliefs.

38. I teach a variety of strategies for organizing content.

39. I change learning assignments when students appear to be failing.

40. I provide positive emotional support and encouragement to students who are insecure about performing well.

41. I provide opportunities for students to learn perspective taking.

42. I help students clarify their own interests and goals.

43. I encourage students to work with other students when they have trouble with an assignment.

44. I demonstrate to students that I care about them.

45. I encourage students to challenge themselves while learning.

46. I help students understand how to link prior knowledge and new information in ways that are meaningful to them.

47. I encourage students to express their preferences for different ways of learning.

48. I appreciate my students for who they are beyond whatever their accomplishments might be.

49. I help students understand different points of view.

50. I plan activities that help students understand how they can reflect on their thinking and learning processes.

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Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always

51. I teach students how to deal with stress that affects their learning.

52. I help students value their abilities.

53. I encourage students to think for themselves while learning.

54. I encourage students to monitor and regulate their own thinking and learning processes.

55. I get to know each student's unique background.

56. I help students feel like they belong in the class.

57. I ask students to listen to and think about their classmates' opinions, even when they don't agree with them.

58. I am able to change my teaching when students are having difficulty.

59. I treat students with respect.

60. I provide activities that are personally challenging to each student.

PART III Directions: Please read each of the following statements. Then decide the extent to which you agree or disagree. Mark the letter for that question on the answer sheet that best matches your choice. Go with your first judgement and do not spend much time mulling over any one statement. PLEASE ANSWER EVERY QUESTION.

Responses: A=Strongly Disagree, B=Somewhat Disagree, C=Somewhat Agree, D=Strongly Agree DO NOT MARK E

61. I am good at helping all the students in my class make significant progress.

62. If I really try hard, I can get through to even the most difficult students.

63. I am certain I am making a difference in the lives of my students.

64. I can deal with almost any learning problem in the classes I teach.

65. Some students are not going to make a lot of progress this year no matter what I do.

66. There is little I can do to ensure that all my students make significant progress this year.

67. There are lots of things a teacher can do to make their relationship with their adolescents a good one.

68. Teachers can have a powerful influence on young adolescents.

69. Early adolescence is a difficult time of life for children and their teachers.

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Responses: **A=Strongly Disagree, B=Somewhat Disagree, C=Somewhat Agree, D=Strongly Agree**

70. Changes in hormones make early adolescence a difficult period of life.

71. Schools can be successful with young adolescents only if they make a special effort to meet the changing needs of this age group.

72. Changes in behavior during early adolescence are mainly due to the physical changes that are occurring.

73. Early adolescence is a stormy and stressful time.

74. The most sensible approach to early adolescence is to relax and hope things will be better with time.

75. Young adolescents are so focused on how they look that it is difficult for them to focus on schoolwork.

76. Young adolescents are so influenced by their friends that what adults say or do matters very little to them.

PART IV Directions: Please read each of the following statements and decide the degree to which it is **generally** true of you as a teacher. Choose a letter from the response scale listed below and mark it on the answer sheet. To get an accurate assessment of yourself as a teacher, it is best to be honest. Do not spend too much time on any one statement but give the answer which seems to describe how you generally think of yourself as a teacher. PLEASE ANSWER EVERY QUESTION.
Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always DO NOT MARK E

77. I try to figure myself out.

78. I'm not aware of myself.

79. I reflect about myself.

80. I'm the subject of my own professional fantasies

81. I scrutinize myself.

82. I'm attentive to my inner feelings.

83. I examine my motives.

84. I have the feeling that I'm off somewhere watching myself.

85. I'm alert to changes in my mood.

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Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always

86. I'm aware of the way my mind works when I work through a problem.

87. I think about the pros and cons of my ideas before I actually use them.

88. When my first plan does not work, I have a back-up ready.

89. I try to predict how well my plans are going to work before I try using them.

90. I examine my motives and goals.

91. I try to figure out what the potential problems are likely to be in a new task.

PART V Directions: The following questions give a series of vignettes. Each one describes an incident and then lists four ways of responding to the situation. Please read each vignette and then consider each response in turn. Think about each response option in terms of how appropriate you consider it to be as a means of dealing with the problem described in the vignette. Please rate each of the four options for each vignette. There are five vignettes with four options for each. There are no right or wrong ratings on these items. Mark the letter for the vignette on the answer sheet that best matches your choice. PLEASE ANSWER EVERY QUESTION.
Responses: A=Very Inappropriate, B=Somewhat Inappropriate, C=Somewhat Appropriate, D=Very Appropriate DO NOT MARK E

Vignette 1 Jim is an average student who has been working at grade level. During the past two weeks he has appeared listless and has not been participating during reading group. The work he does is accurate but he has not been completing assignments. A phone conversation with his mother revealed no useful information. The most important thing for Jim's teacher to do is:

92. He/she should impress upon him the importance of finishing his assignments since he needs to learn this material for his own good.
93. Let him know that he doesn't have to finish all of his work now and see if he/she can help him work out the cause of the listlessness.
94. Make him stay after school until that day's assignments are done.
95. Let him see how he compares with the other children in terms of his assignments and encourage him to catch up with the others.

Vignette 2 Donny loses his temper a lot and has a way of agitating other children. He doesn't respond well to what you tell him to do and you're concerned that he won't learn the social skills he needs. The best thing for you to do with him is:

96. Emphasize how important it is for him to "control himself" in order to succeed in school and in other situations.
97. Put him in a special class which has the structure and reward contingencies which he needs.

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Responses: A=Very Inappropriate, B=Somewhat Inappropriate, C=Somewhat Appropriate, D=Very Appropriate

98. Help him see how other children behave in these various situations and praise him for doing the same.
99. Realize that Donny is probably not getting the attention he needs and start being more responsive to him.

Vignette 3 The Rangers spelling group has been having trouble all year. How could Miss Wilson best help the Rangers?

100. Have regular spelling bees so the Rangers will be motivated to do as well as the other groups.
101. Make them drill more and give them special privileges for improvements.
102. Have each child keep a spelling chart and emphasize how important it is to have a good chart.
103. Help the group devise ways of learning the words together (skits, games, and so on).

Vignette 4 In your class is a girl named Margy who has been the butt of jokes for years. She is quiet and usually alone. In spite of the efforts of previous teachers, Margy has not been accepted by the other children. Your wisdom would guide you to:

104. Prod her into interactions and provide her with much praise for any social initiative.
105. Talk to her and emphasize that she should make friends so she'll be happier.
106. Invite her to talk about her relations with other kids, and encourage her to take small steps when she's ready.
107. Encourage her to observe how other children relate and to join in with them.

Vignette 5 For the past few weeks things have been disappearing from the teacher's desk and lunch money has been taken from some of the children's desks. Today, Marvin was seen by the teacher taking a silver dollar paperweight from her desk. The teacher phoned Marvin' mother and spoke to her about this incident. Although the teacher suspects that Marvin has been responsible for the other thefts, she mentioned only the one and assured the mother that she'll keep a close eye on Marvin. The best thing for the mother to do is:

108. Talk to him about the consequences of stealing and what it would mean in relation to the other kids.
109. Talk to him about it, expressing her confidence in him and attempting to understand why he did it.
110. Give him a good scolding; stealing is something which cannot be tolerated and he has to learn that.
111. Emphasize that it is wrong and have him apologize to the teacher and promise not to do it again.

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PART VI Directions: On the answer sheet please mark the response to each of the following that best describes you. PLEASE ANSWER EVERY QUESTION. Mark only one response to each question.

112. Number of Years Teaching	A=1-2, B=3-5, C=6-10, D=11-15, E=16 or more
113. Number of Years at Current School	A=1, B=2, C=3-4, D=5-7, E=8 or more
114. Main Area of Content Expertise	A=Language Arts, B=Social Studies, C=Science, D=Arts, E=Mathematics
115. Gender	A=Female, B=Male
116. Ethnic/Cultural Background	A=Asian, B=Black, C=Caucasian, D=Hispanic, E=Other
117. Highest Degree Earned	A=Bachelors, B=Masters, C=Ph.D. or Ed.D.
118. Number of Credit Hours Beyond Bachelor's Degree	A=0-10, B=11-20, C=21-30, D=31-40, E=41 or more
119. Main Grade Level Currently Teaching	A=6-7, B=8, C=9, D=10-11, E=12
120. Number of Students in Your Class	A=5-10, B=11-15, C=16-20, D=21-25, E=26 or more
121. Highest Certificate Level Obtained	A=elementary, B=middle, C=secondary
122. Are you currently enrolled in a graduate program for advanced study?	A=Yes, B=No
123. Location of School	A=Rural, B=Suburban, C=Urban
124. Type of School	A=Public, B=Private
125. Do you plan to teach next year?	A=Yes, B=No
126. Knowing what you know, would you choose to go into teaching again?	A=Yes, B=No

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McREL LEARNER-CENTERED BATTERY:
STUDENT SURVEY- GRADES 6-12 VERSION

PART I Directions: Please read each of the following statements. Then decide **how often** your teacher **in this classroom** does what is described in each statement -- almost never, sometimes, often, or almost always. Read each statement and then, using a PENCIL, blacken the appropriate bubble on the answer sheet to indicate how you feel in this class. Answer carefully, but don't think too hard about any one question. PLEASE ANSWER EVERY QUESTION. Mark one answer only. Your responses will be strictly confidential. They will NOT be shown to your teacher. **Please do not mark or write on this booklet**. Thank you for your help in this research project. Use the following responses only:

Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always
DO NOT MARK E. (Please ignore the Y and N above the bubbles)

My teacher ...

1. shows me that he or she appreciates me as an individual.
2. lets me express my own thoughts and beliefs.
3. helps me learn how to organize what I'm learning so I can remember it more easily.
4. changes learning assignments when I seem to be failing.
5. provides support and encouragement when I'm worried I won't perform well.
6. provides opportunities for me to learn how to take someone else's perspective.
7. helps me think through what I'm interested in learning.
8. encourages me to work with other students when I have trouble with an assignment.
9. makes me feel that he or she cares about me.
10. encourages me to challenge myself while learning.
11. helps me put new information together with what I already know so that it makes sense to me.
12. encourages me to tell him or her the way I would like to learn.
13. makes me feel that he or she appreciates me for who I am, not just for how well I do.
14. helps me understand different points of view.
15. helps me see how I can reflect on my thinking and learning.
16. teaches me how to deal with stress that affects my learning.

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Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always
DO NOT MARK E. (Please ignore the Y and N above the bubbles)

17. helps me feel good about my abilities.

18. encourages me to think things out for myself while learning.

19. helps me learn how to check how well I understand what I am learning.

20. makes an effort to get to know me and my background.

21. helps me feel like I belong in the class.

22. asks me to listen to and think about my classmates' opinions, even when I don't agree with them.

23. helps me by explaining and teaching in different ways when I am having trouble understanding.

24. treats me with respect.

25. lets me work on activities that are challenging.

PART II Directions: A number of statements which students have used to describe themselves are given below. Read each statement and then, using a PENCIL, blacken the appropriate bubble on the answer sheet to indicate how you feel in this class. Answer carefully, but don't think too hard about any one question. PLEASE ANSWER EVERY QUESTION.
Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always, DO NOT MARK E

26. I am certain I can do even the hardest work in this class if I try.

27. I try to figure out how new work fits with what I have learned before in this class.

28. When doing work in this class, I guess a lot so I can finish quickly.

29. I do assignments in this class because I learn new things.

30. I want to do well in this class so my parents will think I am smart.

31. I feel most successful in this class when I can do my work without much effort.

32. The material is very interesting to me.

33. I am sure I will do well in this class.

34. I ask myself questions while I do my work to make sure I understand.

35. I do my work without thinking too hard.

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Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always
DO NOT MARK E. (Please ignore the Y and N above the bubbles)

36. I want to learn as much as possible in this class.

37. An important reason for why I do my class assignments is to get better grades than the other students.

38. I feel most successful in this class when I get out of doing my work.

39. I find it difficult to concentrate on this material.

40. I am certain I will be able to learn the material in this class.

41. I pay extra attention to the things the teacher wants us to remember.

42. When I have a difficult assignment in this class, I skip the hard parts.

43. An important reason for why I do my work in this class is because I want to get better at it.

44. I want to do well in this class so other students will think I am smart.

45. I try to do as little work as possible in this class.

46. I think it is fun to increase my understanding about the subject matter.

47. I am sure I will get a good grade in this class.

48. When we have a difficult assignment in this class, I try to figure out the hard parts on my own.

49. When I have trouble with an assignment, I give up.

50. I do assignments in this class because I want to improve my skills.

51. The main reason I do my work in this class is because I want to get the highest grade.

52. In this class, I prefer assignments that are easy so I don't have to work very hard.

53. I feel that the material will be boring.

54. Even when the work is hard, I can learn it.

55. I go back over assignments I don't understand.

56. In this class, I only study things that will be on a test.

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Responses: A=Almost Never, B=Sometimes, C=Often, D=Almost Always
DO NOT MARK E. (Please ignore the Y and N above the bubbles)

57. I do assignments in this class because the work is interesting.

58. When I do work in this class, it doesn't matter to me if other students get a better grade.

59. When I do work in this class, I just want to get it done as quickly as possible.

60. It is fascinating to me to learn new information.

61. No matter how much I try, there is some work in this class I'll never understand.

62. When I have trouble figuring out an assignment, I try to think about it in different ways.

63. When I don't understand an assignment in this class, I get the answers from my friends.

64. I want to do my work because it really makes me think.

65. I want to do well in this class so the teacher will think I am smart.

66. I feel most successful in this class when I get a good grade without working too hard.

67. I enjoy learning material which is unfamiliar to me.

68. When I make mistakes, I try to figure out why.

69. If I need help to do an assignment in this class, I skip it.

70. I find myself losing interest when complex material is presented.

71. I spend some time thinking about how to do an assignment before I begin it.

72. When I don't understand an assignment, I just write down the first thing that comes to mind.

PART III Directions: On the answer sheet please blacken the response to each of the following that describes you. Mark only one response for each question. PLEASE ANSWER EVERY QUESTION.

73.	Gender	A=Female, B=Male
74.	Ethnic/Cultural Background	A=Asian, B=Black, C=Caucasian, D=Hispanic, E=Other
75.	Current Grade Level	A=6-7, B=8, C=9, D=10-11, E=12

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Definitions of Teacher Scales
(with suggested SPSS variable names)

Teacher Beliefs

Factor 1 - **Learner-centered beliefs about learners, learning, and teaching** (lcbelief)
14 Items: 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 30, 32, 34, 35

Factor 2 - **Nonlearner-centered beliefs about learners** (nlcstu)
9 Items: 2, 5, 8, 11, 14, 17, 20, 23, 26

Factor 3 - **Nonlearner-centered beliefs about learning and teaching** (nlctchlr)
12 Items: 3, 6, 9, 12, 15, 18, 21, 24, 27, 29, 31, 33

Teacher Perceptions of Classroom Practices

Factor 1 - **Creates positive interpersonal relationships** (tposrel)
7 Items: 36, 40, 44, 48, 52, 56, 59

Factor 2: **Honors student voice, provides challenge, and encourages perspective taking** (tstuvoic)
7 Items: 37, 41, 45, 49, 53, 57, 60

Factor 3 - **Encourages higher-order thinking and self-regulation** (thots)
6 Items: 38, 42, 46, 50, 54, 58

Factor 4: **Adapts to individual developmental differences** (taidd)
5 Items: 39, 43, 47, 51, 55

Teacher Characteristics

Teacher Self-Efficacy - Belief in competency to be an effective teacher and facilitator of learning for all students (eff)
6 Items: 61, 62, 63, 64, 65, 66 (reverse 65, 66)

Reflective Self-Awareness- The degree to which the teacher is aware of the influence of thoughts and feelings on actions and tends to analyze and reflect on personal or professional experiences (rsa)
15 Items: 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91 (reverse 78)

Teacher Beliefs About Adolescence

Factor 1 - **Belief that the teacher can influence student learning even during adolescence** (adotinf)
4 Items: 67, 68, 71, 76 (reverse 76)

Factor 2 - **Belief that the teacher cannot have much impact during the difficult stage of adolescence** (adodifst)
6 Items: 69, 70, 72, 73, 74, 75

Teacher Autonomy Support

Factor 1 - Belief that learning is supported best by a **moderate level of teacher control** and direction of learning (avsmc)
5 Items: 92, 96, 102, 105, 111

Factor 2 - Belief that learning is supported best by a **high level of teacher control** and direction of learning (avshc)
5 Items : 94, 97, 101, 104, 110

Factor 3 - Belief that learning is supported best by a **moderate level of support for student choice** and personal control over learning (avsma)
5 Items : 95, 98, 100, 107, 108

Factor 4 - Belief that learning is supported best by a **high level of support for student choice** and personal control over learning (avsha)
5 Items : 93, 99, 103, 106, 109

Definitions of Student Scales
(with suggested SPSS variable names)

Student Perceptions of the Teacher's Classroom Practices

Factor 1 - **Creates positive interpersonal relationships** (posrel)
7 Items: 1, 5, 9, 13, 17, 21, 24

Factor 2: **Honors student voice, provides challenge, and encourages perspective taking** (stuvoic)
7 Items: 2, 6, 10, 14, 18, 22, 25

Factor 3 - **Encourages higher-order thinking and self-regulation** (hots)
6 Items: 3, 7, 11, 15, 19, 23

Factor 4: **Adapts to individual developmental differences** (aidd)
5 Items: 4, 8, 12, 16, 20

Student Motivation Variables

Self-Efficacy Ratings - Beliefs in competency to learn and achieve (sec)
6 Items: 26, 33, 40, 47, 54, 61 (reverse 61)

Effort-Avoidance Strategies - Strategies directed at avoiding effort while learning (eas)
8 Items: 28, 35, 42, 49, 56, 63, 69, 72

Performance-Oriented Goals - Extrinsic motivational orientation directed to achieving high grades or scores rather than to learning (pog)
6 Items: 30, 37, 44, 51, 58, 65

State Epistemic Curiosity - Knowledge-seeking curiosity in learning situations (sec)
6 Items: 32, 39, 46, 53, 60, 67, 70 (reverse 39, 53, 70)

Active Learning Strategies - Strategies directed at being actively engaged while learning (als)
8 Items: 27, 34, 41, 48, 55, 62, 68, 71

Task-Mastery Goals - Intrinsic motivational orientation directed to learning and mastering task goals (tmg)
6 Items: 29, 36, 43, 50, 57, 64

Work-Avoidant Goals - Motivational orientation directed to avoiding assignments and other work involved in learning (wag)
6 Items: 31, 38, 45, 52, 59, 66

Student - Teacher Classroom Practices Discrepancy Scales

Factor 1 - **Differences in perceptions of creating positive interpersonal relationships** (dposrel)

Subtract tposrel from posrel.

Factor 2: **Differences in perceptions of honoring student voice, providing challenge, and encouraging perspective taking** (dstuvoic)

Subtract tsuvoic from stuvoic.

Factor 3 - **Differences in perceptions of encouraging higher-order thinking and self-regulation** (dhots)

Subtract thots from hots.

Factor 4: **Differences in perceptions of adapting to individual developmental differences** (daidd)

Subtract taidd from aidd.

Student Achievement

Classroom Achievement Score (ach)

Teacher-assigned current classroom achievement score from 0 to 100, based on teacher's individual grading policy

McREL LEARNER-CENTERED BATTERY: GRADES 6-12 VERSION

Administrator Instructions

The Teacher and Student Survey answer sheets are pre-stamped with an identification code that matches students to teachers. We are using the following identification scheme:

e.g. Teacher ID = 145011:

1 = teacher identification
45 = survey site
01 = instructor number
1 = class number (if applicable)

e.g. Student ID = 24501101
2 = student identifier
45 = survey site
01 = teacher number
1 = class number (if applicable)
01 = student number in the class
The student number matches students to their teachers for a single class.

The scanner will record erased marks in blank bubbles (and will not record any response if it senses two answers, hence the reason for complete erasures). Therefore, survey takers should not do any marking in the Special Codes or ID boxes.

Please return the teacher packets in numerical order and with the student surveys ordered numerically within each class. Include the Student Survey Master ID List with each packet.

Please return all materials (survey booklets, answer sheets, master student ID lists) to McREL as soon as possible, and no later than the date indicated in the memo accompanying the surveys.

Thank you for your help with this project.

McREL LEARNER-CENTERED BATTERY: GRADES 6-12 VERSION

Teacher Instructions

"This survey consists of an eight-page booklet with a total of 126 questions and an answer sheet. Using a PENCIL, darken the bubble that corresponds to your answer to each survey item on your answer sheet. Answer every question. Mark only one answer for each question. If you need to change your answer, erase completely. The questions are divided into six parts. For Parts I though V (questions 1 through 111), the answer choices are A, B, C, and D. There is no E alternative for these questions, so do not mark E. The meanings of the alternatives are different for the different parts of the survey, so read the directions for each part very carefully. For Part VI (questions 110 through 127), an E choice is possible for some questions.

Do not mark in the ID or Special Codes boxes on tne answer sheet. Teachers should make a record of their Teacher ID which is stamped at the top of the answer sheet.

Please note: The teacher should respond to the survey in relation to how she or he views and interacts with the specific class of students that are responding to the survey. For this reason, and for data analysis purposes, it is necessary for the teacher to retake the whole teacher survey for each separate class that is responding to the student survey.

Each teacher needs to make a master list of student names matched to their teacher ID from 01 to xx for each class surveyed. A master-list form is included with the class survey packet. It is suggested that the teacher simply alphabetize the student names on the master list and hand out the answer sheets according to the pre-assigned code. It is very important for teachers to write the classroom achievement score from 0 to 100 for each student in the spaces provided on the master list. This is to be a subjective evaluation of the student's overall score based on whatever grading criteria each teacher uses (e.g., based on an overall assessment of performance, attendance, participation, etc.) With regard to confidentiality, it is the responsibility of the teacher to respect the confidentiality of the students' answers by using the master list only for purposes of assigning an achievement score. The master list should be returned with the survey booklets and answer sheets to the administrator.

Thank you for your help with this project."

McREL LEARNER-CENTERED BATTERY: GRADES 6-12 VERSION

Student Instructions

Teachers should read the following instructions to the students, supplemented with any explanation they think necessary. Teachers should read through Part I directions with the students so they know how to mark their answers on the answer sheet. Make sure they understand the response scale. It is especially important that they do not mark E for Parts I and II, and that they ignore the Y and N above each set of bubbles and use A, B, C, or D as their choices.

"You are being asked to help in a research study that is looking at how students think their classrooms and schools should be changed for the better. Also, your responses to this survey will help me in developing more effective teaching practices in this class. You may be asked to complete this survey for some of your other classes too, so it is very important that you answer honestly for each class and each teacher. Your responses will be completely confidential. They will not be shown to your teacher.

This survey consists of a four-page booklet with a total of 75 questions and an answer sheet. Choose your response (A, B, C, or D) to each item and using a PENCIL, darken the corresponding bubble for that survey item on your answer sheet. Ignore the Y and N above each set of bubbles and use the A, B, C, D bubbles as directed. Part I has 25 items (#1 through #25). Part II has 47 items (#26 through #72). For Parts I and II, the alternatives are A, B, C, D. There is no E alternative, so do not choose E for questions 1 through 72. Part III has three items (#73 though #75). (It is OK to mark E for these questions, if appropriate.) It is important that you answer every question. Mark only one answer for each question. Do not skip any items. If you need to change your answer, erase completely. Do not make any marks on the survey booklet. Put all your answers on the answer sheet as directed.

When you are finished, return both the survey booklet and your answer sheet.

Thank you for your help with this project."

STUDENT SURVEY MASTER ID LIST

Teacher Name _____ Teacher I.D. # _____

Student I.D. #	Survey #	Achievement Score*	Student I.D. #	Survey #	Achievement Score*
	01			21	
	02			22	
	03			23	
	04			24	
	05			25	
	06			26	
	07			27	
	08			28	
	09			29	
	10			30	
	11			31	
	12			32	
	13			33	
	14			34	
	15			35	
	16			36	
	17			37	
	18			38	
	19			39	
	20			40	

**The achievement score is from 0 to 100. This is to be a subjective evaluation of each student's overall score based on whatever grading criteria each teacher uses (e.g., based on an overall assessment of performance, attendance, participation, etc.)*

Description of Survey Feedback

Tables

Survey feedback for teachers includes one table of data for the 15 teacher LCB scales and one table of data for the 15 student LCB scales and the student achievement score. For both tables, data are aggregated in SPSS by the teacher identification code, and a fixed ASCII file is created. The individual teacher scores or means from this ASCII file are merged with a table template in a word processing program (i.e., Word Perfect). Each table also includes a "most preferred score" as a guideline for interpretation. The tables can be customized in response to the needs of schools and districts.

Graphs

In addition to the tables, for each class there are four bar graphs that depict the frequencies (number of students) of student-teacher discrepancy scores for the four classroom practices scales. These graphs are obtained though a split-file procedure in SPSS. The graphs are useful in indicating to teachers the extent of the differences between their perceptions and those of their students, compared across four domains of classroom practices. A fifth bar graph summarizes the means of the discrepancy scores for the four domains.

Feedback Interpretation

"The most preferred score" for each scale on the teacher and student tables indicates the general direction of scores for learner-centered teaching based on current validation data. A protocol for guided reflection on LCB results can be used to aid interpretation.

Guided Reflection Protocol for

Learner-Centered Battery Feedback

1. What do you teach?

2. What are the kids like in your class?

3. How did the implementation of the surveys go for you? Did you have any problems taking it seriously? Why or why not?

4. How do you think the kids feel about the survey? Did they take it seriously? Why or why not?

5. How do you think your students felt about the opportunity to share their perspectives (anonymously) about your practices?

6. What were your reactions to the survey feedback?

7. Were there any surprises in your own or your students' responses?

8. What did you see as possible strengths in your practices? or as possible areas you would like to work on?

9. How useful did you find the information? How do you think it might contribute to changes in your practices or in your impact on student learning and motivation?

LEARNER-CENTERED PRINCIPLES: TEACHER SELF-ASSESSMENT EXAMPLE

Teacher Data

TEACHER 011

Teacher Measures	Explanation (Definition or Example)	Your Score	Most Preferred Score
Teacher Beliefs:			
Learner-Centered beliefs about learners, learning, & teaching	I believe that just listening to students in a caring way helps them solve their own problems.	3.21	High ≥ 3.2
Non-learner centered beliefs about learners	There are some students whose personal lives are so dysfunctional that they simply do not have the capability to learn.	3.00	Low < 2.4
Non-learner centered beliefs about learning & teaching	I can't allow myself to make mistakes with my students.	2.16	Low < 2.4
Teacher Classroom Practices:			
Creates positive interpersonal relationships/climate	I demonstrate to each student that I appreciate him/her as an individual.	3.42	High ≥ 3.6
Honors student voice, provides challenge, and encourages perspective taking	I allow students to express their own unique thoughts and beliefs.	3.28	High ≥ 3.4
Encourages higher order thinking ar l self-regulation	I teach a variety of strategies for organizing content.	2.66	High ≥ 3.2
Adapts to individual developmental differences	I get to know each student's unique background.	3.20	High ≥ 2.7
Teacher Self-Efficacy	Beliefs in competency to be an effective teacher and facilitator of learning for all students.	3.00	High ≥ 3.2
Teacher Beliefs About Adolescence:	Beliefs that the teacher:		
Teachers Can Influence Difficult Stage	Can influence student learning even during adolescence. Cannot have much impact on student learning during the difficult period of adolescence.	3.50 3.33	High ≥ 3.5 Low < 3.0
Reflective Self-Awareness	Degree to which teacher is aware of the influence of thoughts and feelings on actions and tends to analyze and reflect on personal or professional experiences.	2.33	High ≥ 3.0
Autonomy Support:	Degree to which teacher believes learning is best supported by:		
Moderately Controlling Highly Controlling Moderately Autonomy Supportive Highly Autonomy Supportive	Moderate teacher control and direction of learning. High teacher control and direction of learning. Moderate level of support for student choice and personal control over learning High level of support for student choice and personal control over learning.	2.80 3.40 2.60 2.60	Higher ≥ 3.0 Lower < 2.5 Lower < 3.0 Higher ≥ 3.3

Most preferred score patterns are based on the scores of the 25 validation sample teachers' with the highest proportion of students high in both achievement and motivation. For the validation sample, data were collected from 113 middle school teachers and 2476 middle school students, 155 high school teachers and 3136 high school students from six states: AK, CO, IL, KY, MI, NC.

LEARNER-CENTERED PRINCIPLES: TEACHER SELF-ASSESSMENT EXAMPLE

Student Data

Teacher 011

Student Measures	Explanation (Definition or Example)	Your Score		Most Preferred Score
		Mean	SD*	Mean
Student Perception of Classroom Practices				
Creates positive interpersonal relationships/climate	My teacher shows me that he or she appreciates me as an individual.	2.94	.85	High ≥ 3.3
Honors student voice, provides challenge, and encourages perspective taking	My teacher lets me express my own thoughts and beliefs.	3.05	.67	High ≥ 3.2
Encourages higher order thinking and self-regulation	My teacher helps me organize what I'm learning so I can remember it more easily.	2.98	.76	High ≥ 3.1
Adapts to individual developmental differences	My teacher makes an effort to get to know me and my background.	2.56	.64	High ≥ 2.6
Differences Between Student and Teacher Perception of Classroom Practices				Low ≥ 0 or
Creates positive interpersonal relationships/climate	Student's rating of teacher's positive relationships minus teacher's rating.	-.49	.85	Low ≥ -.2
Honors student voice, provides challenge, and encourages perspective taking	Student's rating of teacher's honoring student voice minus teacher's rating.	-.24	.67	Low ≥ -.1
Encourages higher order thinking and self-regulation	Student's rating of teacher's encouragement of higher order thinking minus teacher's rating.	.32	.76	Low ≥ 0
Adapts to individual developmental differences	Student's rating of teacher's adaptation to individual differences minus teacher's rating.	-.64	.64	Low ≥ -.1
Student Learning and Motivation Variables				
Self-Efficacy	Beliefs in competency to learn and achieve.	2.76	.75	High ≥ 3.4
Effort Avoidance Strategies	Strategies directed at avoiding effort while learning.	2.08	.58	Low < 2.0
Performance-Oriented Goals	Extrinsic motivational orientation directed to achieving high grades or scores rather than to learning.	2.14	.58	Low < 2.0
State Epistemic Curiosity	Knowledge-seeking curiosity in learning situations.	2.71	.59	High ≥ 2.9
Active Learning Strategies	Strategies directed at being actively engaged while learning.	2.68	.75	High ≥ 3.0
Task Mastery Goals	Intrinsic motivational orientation directed to learning and mastering task goals.	2.76	.76	High ≥ 3.1
Work-Avoidant Goals	Motivational orientation directed to avoiding assignments and other work involved in learning.	2.24	.73	Low < 2.3
Achievement Scores	Teacher-assigned classroom achievement score on a scale from 0 to 100.	76.00	7.88	High ≥ 90.7

Most preferred score patterns are based on the scores of the 25 validation sample teachers' with the highest proportion of students high in both achievement and motivation. For the validation sample, data were collected from 113 middle school teachers and 2476 middle school students, 155 high school teachers and 3136 high school students from six states: AK, CO, IL, KY, MI, NC.

*SD=Standard Deviation, the statistic that reflects the average difference among scores

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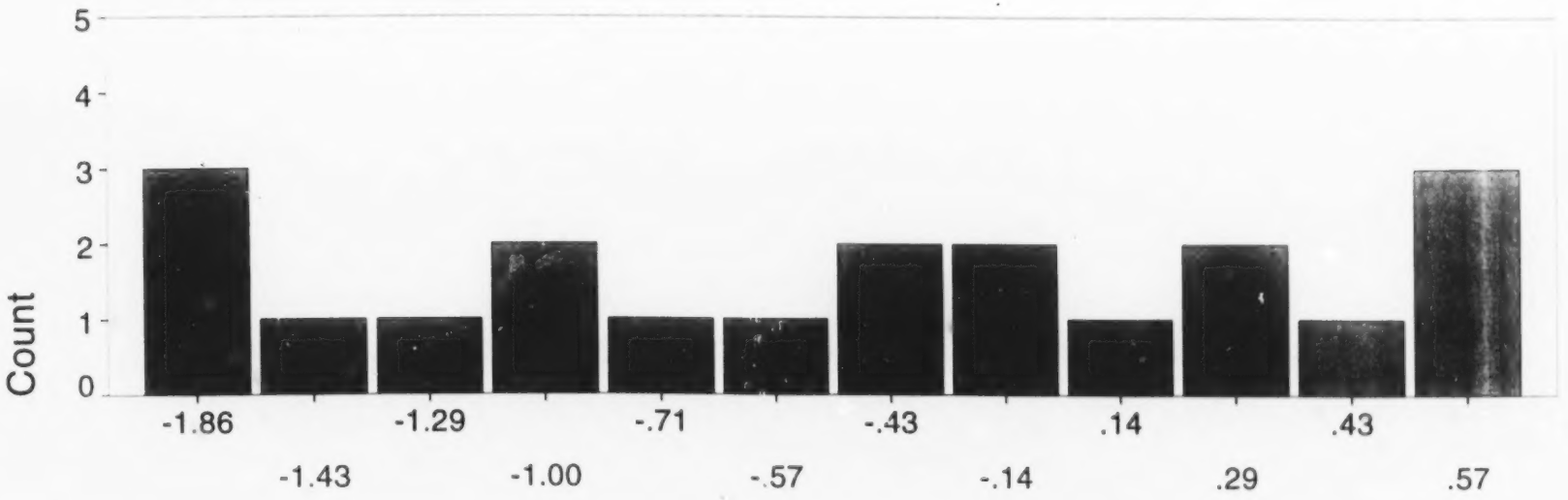
Creates Positive Interpersonal Relationships

TEACHER: 011



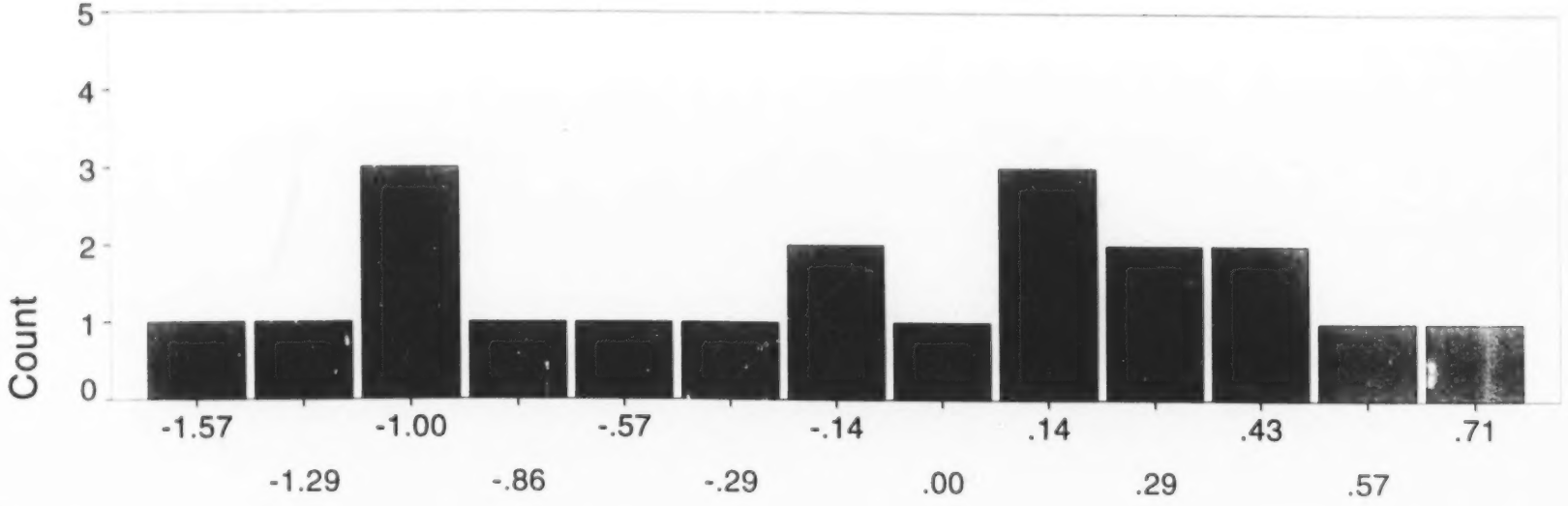
Differences Between Student and Teacher Assessments

Zero difference means that student and teacher assessments are the same.

Count (height of bar) = Number of Students

Honors Student Voice

TEACHER: 011



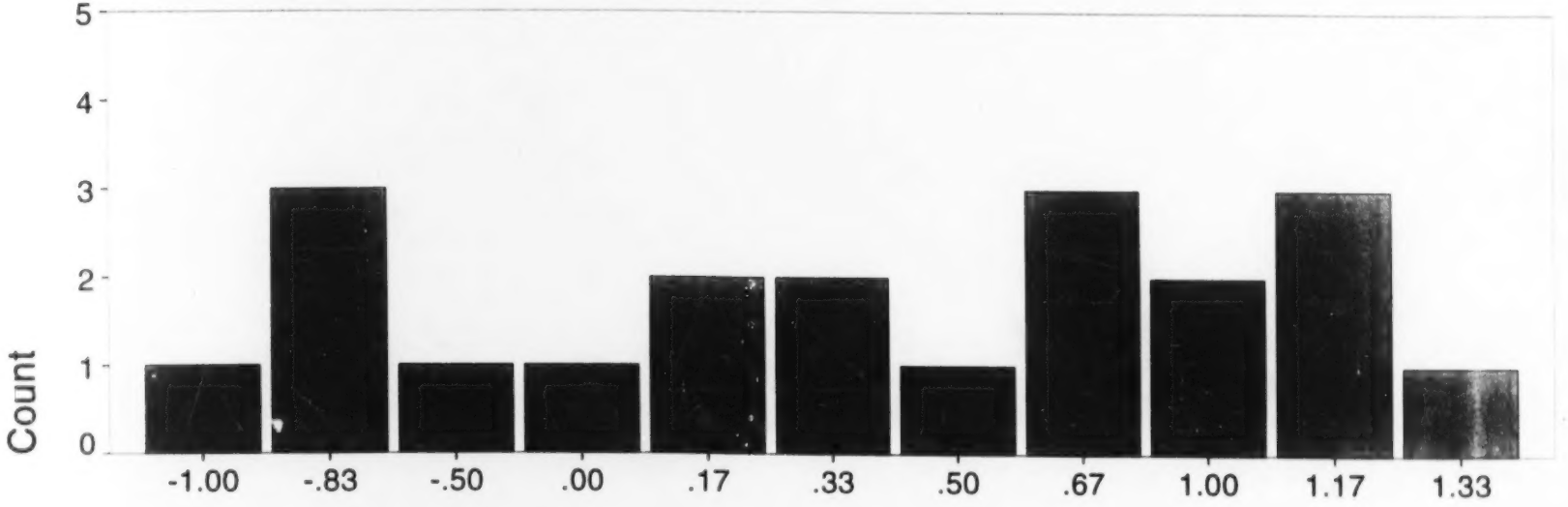
Differences Between Student and Teacher Assessments

Zero difference means that student and teacher assessments are the same.

Count (height of bar) = Number of Students

Encourages Higher-Order Thinking

TEACHER: 011



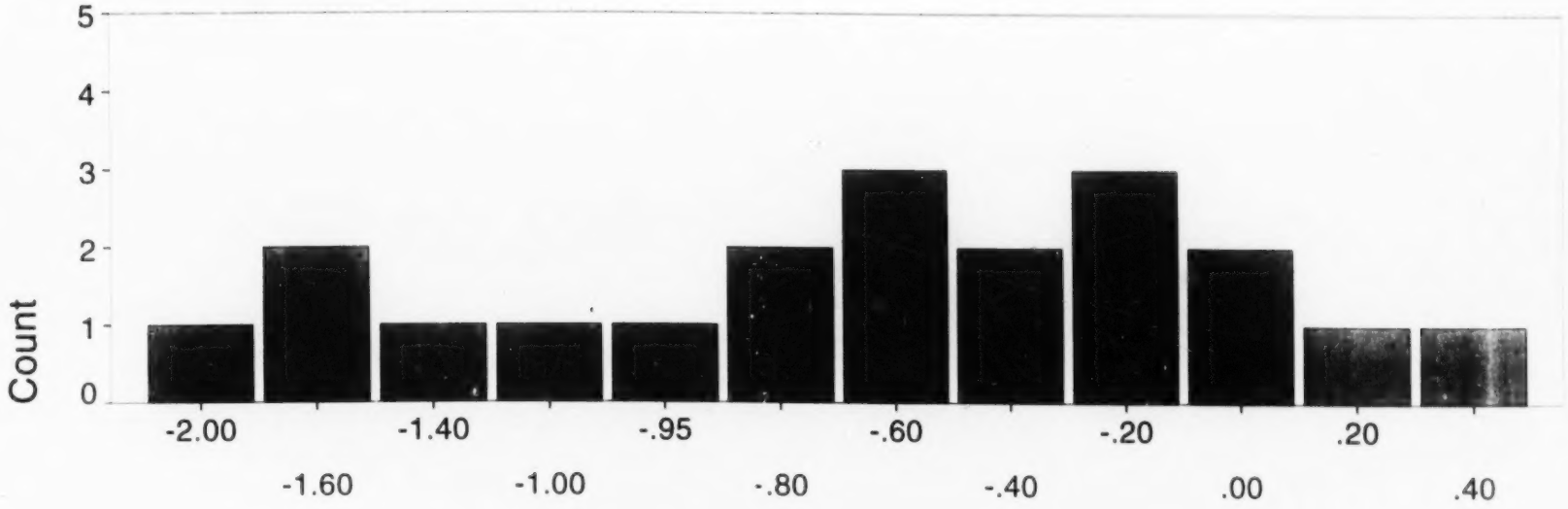
Differences Between Student and Teacher Assessments

Zero difference means that student and teacher assessments are the same.

Count (height of bar) = Number of Students

Adapts to Individual Differences

TEACHER: 011



Differences Between Student and Teacher Assessments

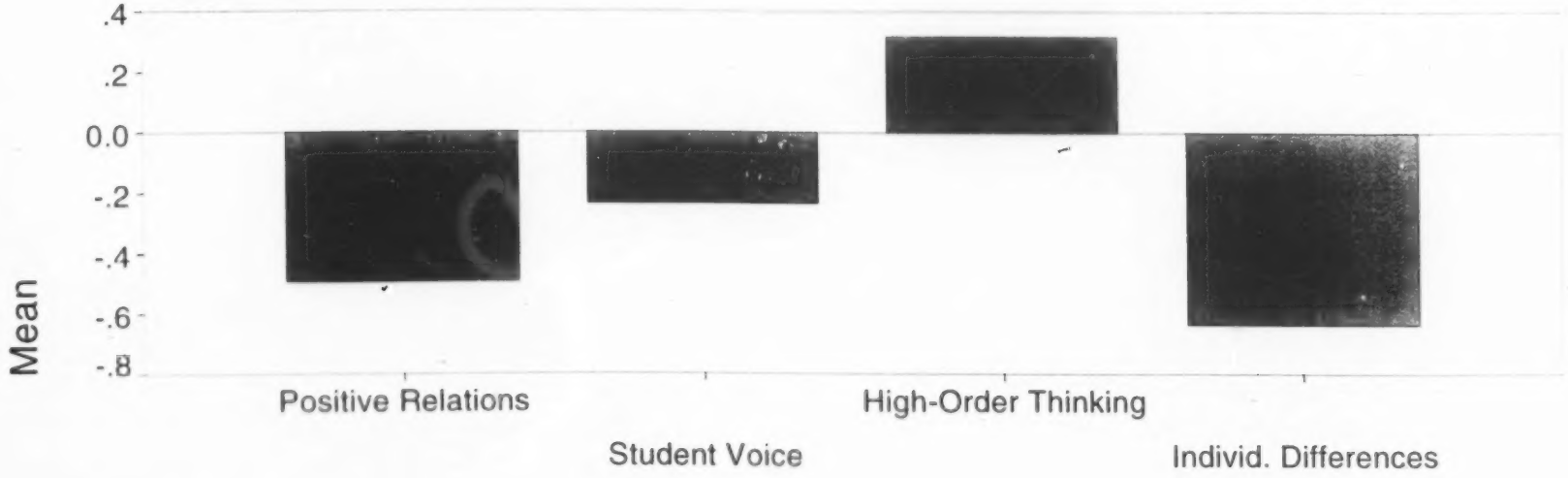
Zero difference means that student and teacher assessments are the same.

Count (height of bar) = Number of Students

Classroom Practices: Mean Differences

Between Student and Teacher Assessments

TEACHER: 011



AREA OF PRACTICE

Zero difference means that student and teacher assessments are the same.

```
* ANALYSIS.SPS
ORDER OF OPERATIONS for SPSS data analysis of responses to the Teacher and
Student Surveys of the McREL Learner-Centered Battery: Grades 6-12 Version
(1997).

Responses to the Teacher Survey must be entered into SPSS data file
TEACHER.SAV with the variable names t1 through t111 and tdem112 through
tdem126.

Responses to the Student Survey must be entered into SPSS data file
STUDENT.SAV with the variable names s1 through s72 and sdem75 through
sdem75.

To obtain teacher variables:
Open TEACHER.SAV file.
Open and execute the following SPSS syntax files in order:
    RECODTCH.SPS
    REV-TCH.SPS
    SCALETCH.SPS
    TCHIDSRT.SPS
Save TEACHER.SAV file.

To obtain student variables:
Open STUDENT.SAV file.
Open and execute the following SPSS syntax files in order:
    RECODSTU.SPS
    REV-STU.SPS
    SCALESTU.SPS
    TCHIDSRT.SPS
Save STUDENT.SAV file.

To merge teacher and student files:
Open TEACHER.SAV file.
Open and execute the following SPSS syntax file:
    MRTCHSTU.SPS
Save NEWDATA.SAV as MRTCHSTU.SAV file.

To obtain student-teacher discrepancy scores:
Open MRTCHSTU.SAV file.
Open and execute the following SPSS syntax file:
    DIFF-ST.SPS
Save MRTCHSTU.SAV file.

To obtain means and standard deviations for teacher variables:
Open TEACHER.SAV file.
Open and execute the following SPSS syntax file:
    MNSDTCH.SPS

To obtain means and standard deviations for student variables:
Open MRTCHSTU.SAV file.
Open and execute the following SPSS syntax file:
    MNSDSTU.SPS

To obtain individual teacher means and standard deviations for all teacher
and student variables:
Open MRCHSTU.SAV file.
Open and execute the following SPSS syntax file:
    AGTCHSTU.SPS

To merge two teacher data files (or two student data files or two merged
teacher-student files) from two data collections:
Open FILE-1.SAV file.
Open and execute the following SPSS syntax file:
    MRDATA.SPS
Save NEWDATA.SAV under a new name.
```

List of SPSS syntax files used to analyze responses to the Teacher and Student Surveys of the McREL Learner-Centered Battery: Grades 6-12 Version (1997).

```
* AGTCHSTU.SPS
Creates means for teacher variables and means and standard deviations for
student variables, aggregated by teacher.
AGGREGATE
  /OUTFILE= 'A:\AGTCHSTU.SAV'
  /BREAK=tchid
  /lcbeli_1 = MEAN(lcbelief) /nlcstu_1 = MEAN(nlcstu) /nlctch_1 =
  MEAN(nlctchlr) /tposre_1 = MEAN(tposrel) /tstuvo_1 = MEAN(tstuvoic)
  /thots_1 = MEAN(thots) /taidd_1 = MEAN(taidd) /eff_1 = MEAN(eff)
  /adotin_1 = MEAN(adotinf) /adodif_1 = MEAN(adodifst) /rsa_1 = MEAN(rsa)
  /avsmc_1 = MEAN(avsmc) /avshc_1 = MEAN(avshc) /avsma_1 = MEAN(avsma)
  /avsha_1 = MEAN(avsha) /posrel_1 = MEAN(posrel) /posrel_2 = SD(posrel)
  /stuvoi_1 = MEAN(stuvoic) /stuvoi_2 = SD(stuvoic) /hots_1 = MEAN(hots)
  /hots_2 = SD(hots) /aidd_1 = MEAN(aidd) /aidd_2 = SD(aidd) /dposre_1
   = MEAN(dposrel) /dposre_2 = SD(dposrel) /dstuvo_1 = MEAN(dstuvoic)
  /dstuvo_2 = SD(dstuvoic) /dhots_1 = MEAN(dhots) /dhots_2 = SD(dhots)
  /daidd_1 = MEAN(daidd) /daidd_2 = SD(daidd) /ser_1 = MEAN(ser)
  /ser_2 = SD(ser) /eas_1 = MEAN(eas) /eas_2 = SD(eas) /pog_1 = MEAN(pog)
  /pog_2 = SD(pog) /sec_1 = MEAN(sec) /sec_2 = SD(sec) /als_1 = MEAN(als)
  /als_2 = SD(als) /tmg_1 = MEAN(tmg) /tmg_2 = SD(tmg) /wag_1 = MEAN(wag)
  /wag_2 = SD(wag) /achiev_1 = MEAN(achieve) /achiev_2 = SD(achieve).

* DIFF-ST.SPS
Computes student-teacher discrepancy scores for teacher classroom practices.
COMPUTE dposrel = posrel - tposrel .
EXECUTE .
COMPUTE dstuvoic = stuvoic - tstuvoic .
EXECUTE .
COMPUTE dhots = hots - thots .
EXECUTE .
COMPUTE daidd = aidd - taidd .
EXECUTE .

* MNSDSTU.SPS
Computes means and standard deviations for student variables.
FREQUENCIES
  VARIABLES=posrel stuvoic hots aidd dposrel dstuvoic dhots daidd ser
  eas pog sec als tmg wag achieve
 /FORMAT=NOTABLE
 /STATISTICS=STDDEV MEAN  .

* MNSDTCH.SPS
Creates means and standard deviations for teacher variables.
FREQUENCIES
  VARIABLES=lcbelief nlcstu nlctchlr tposrel tstuvoic thots taidd eff
  adotinf adodifst rsa avsmc avshc avsma avsha
  /FORMAT=NOTABLE
  /STATISTICS=STDDEV MEAN  .

* MRDATA.SPS
Syntax to merge two data files by adding cases. Variables in the two files
must be identical. Save the NEWDATA.SAV file under a new name.
ADD FILES /FILE=*
 /FILE='A:\FILE-2.SAV'.
EXECUTE.
```

```
* MRTCHSTU.SPS
Merges teacher and student data files by adding variables. The teacher file
must be opened. Both teacher and student files must be presorted on tchid,
the teacher identification code. Save the NEWDATA.SAV file under a new name.
MATCH FILES /TABLE=*
 /FILE='A:\STUDENT.SAV'
 /BY tchid.
EXECUTE.


* RECODSTU.SPS
Recodes 0s and non-choice answers to system-missing on student questions.
RECODE
  s1 s10 s11 s12 s13 s14 s15 s16 s17 s18 s19 s2 s20 s21 s22 s23 s24 s25 s26
  s27 s28 s29 s3 s30 s31 s32 s33 s34 s35 s36 s37 s38 s39 s4 s40 s41 s42 s43
  s44 s45 s46 s47 s48 s49 s5 s50 s51 s52 s53 s54 s55 s56 s57 s58 s59 s6 s60
  s61 s62 s63 s64 s65 s66 s67 s68 s69 s7 s70 s71 s72 s8 s9 (1=1)  (2=2)
  (3=3)  (4=4) (else = sysmis).
EXECUTE .
RECODE
  sdem73
  (1=1)  (2=2) (else =sysmis) .
EXECUTE .
RECODE
  sdem74 sdem75
  (1=1)  (2=2)  (3=3)  (4=4)  (5=5) (else =sysmis) .
EXECUTE .


* RECODTCH.SPS
Recodes 0s and non-choice answers to system-missing on teacher questions.
RECODE
  t1 t10 t100 t101
  t102 t103 t104 t105 t106 t107 t108 t109 t11 t110 t111 t12 t13 t14 t15 t16
  t17 t18 t19 t2 t20 t21 t22 t23 t24 t25 t26 t27 t28 t29 t3 t30 t31 t32 t33
  t34 t35 t36 t37 t38 t39 t4 t40 t41 t42 t43 t44 t45 t46 t47 t48 t49 t5 t50
  t51 t52 t53 t54 t55 t56 t57 t58 t59 t6 t60 t61 t62 t63 t64 t65 t66 t67 t68
  t69 t7 t70 t71 t72 t73 t74 t75 t76 t77 t78 t79 t8 t80 t81 t82 t83 t84 t85
  t86 t87 t88 t89 t9 t90 t91 t92 t93 t94 t95 t96 t97 t98 t99  (1=1)  (2=2)
  (3=3)  (4=4) (else = sysmis) .
EXECUTE .
RECODE
  tdem115 tdem122 tdem124 tdem125 tdem126
  (1=1)  (2=2) (else =sysmis) .
EXECUTE .
RECODE
 tdem117 tdem121 tdem123
  (1=1)  (2=2)  (3=3)  (else =sysmis)  (0=SYSMIS)  (MISSING=SYSMIS)  .
EXECUTE .
RECODE
   tdem112 tdem113 tdem114 tdem116 tdem118 tdem119 tdem120
  (1=1)  (2=2)  (3=3)  (4=4)  (5=5) (else =sysmis)  (0=SYSMIS)  (MISSING=SYSMIS)  .
EXECUTE .


* REV-STU.SPS
Reverses answers on reversed student questions.
RECODE
  s39 s53 s61 s70  (1=4)  (2=3)  (3=2)  (4=1)  .
EXECUTE .


*REV-TCH.SPS
Reverses answers on reversed teacher questions.
RECODE
  t65 t66 t76 t78  (1=4)  (2=3)  (3=2)  (4=1)  .
EXECUTE .
```

```
* TCHIDSRT.SPS
Sorts teachers and students by teacher identification number in ascending
order.
SORT CASES BY
  tchid (A) .
```

```
*GRAPH.SPS
Creates LCB graphs for individual teachers. The syntax for each graph
specifies a previously defined template graph. If a template graph is not
available, the TEMPLATE command line should be be removed from the syntax.
Individual graphs need to be edited for any changes with the chart editor
in the SPSS Chart Carousel.

*After opening a MRTCHSTU.SAV file, the variable of TCHID is renamed to
TEACHER and the file is then split and sorted by TEACHER.

RENAME VARIABLES (TCHID=TEACHER).

SORT CASES BY teacher.
SPLIT FILE
  BY teacher.


*For the following four graphs, change the labels of each discrepancy
variable (dposrel, dstuvoic, dhots, daidd) to: Differences Between
Student and Teacher Assessments. In the Chart Carousel, edit the scale
of each graph, setting the minimum number to 0 and the maximum number
to the maximum number of frequencies across the four difference domains
for the teacher. (This is obtained by examining the frequency distributions
for the discrepancy variables for each teacher.) Set the major and minor
increments to 1.


GRAPH
  /BAR(SIMPLE)=COUNT BY dposrel
  /MISSING=REPORT
  /TEMPLATE='A:\DPOSREL.CHT'.

GRAPH
  /BAR(SIMPLE)=COUNT BY dstuvoic
  /MISSING=REPORT
  /TEMPLATE='A:\DSTUVOIC.CHT'.

GRAPH
  /BAR(SIMPLE)=COUNT BY dhots
  /MISSING=REPORT
  /TEMPLATE='A:\DHOTS.CHT'.

GRAPH
  /BAR(SIMPLE)=COUNT BY daidd
  /MISSING=REPORT
  /TEMPLATE='A:\DAIDD.CHT'.


*For the following graph which summarizes the amount of discrepancy across
the four discrepancy variables (dposrel, dstuvoic, dhots, daidd), change
the names of the labels to: Positive Relations, Student Voice, High-Order
Thinking, Individ. Differences

GRAPH
  /BAR(SIMPLE)= MEAN(dposrel) MEAN(dstuvoic) MEAN(dhots) MEAN(daidd)
  /MISSING=LISTWISE
  /TEMPLATE='A:\MNDIFFS.CHT'.
```